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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 JULY 5, 1935 NO. 27

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES [1]

May 19–June 15, 1935

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the PUBLIC HEALTH REPORTS, under the section entitled "Prevalence of Disease."

Meningococcus meningitis.—For the 4 weeks ended June 15, 568 cases of meningococcic meningitis were reported, a decrease of 137 cases from the preceding 4-week period. Weekly totals have fallen from a maximum of 179 for the week ended May 18 to 108 for the week ended June 15. In spite of the decline, the prevalence continues to be much higher than usual at this season.

In the accompanying table are shown the number of reported cases in each State by weeks since April 19 and the totals for a preceding 20-week period of unusual prevalence and for the corresponding periods of the 2 preceding years.

The excess incidence in 1935 obtains rather generally throughout the country, with the exception of the New England States, although a number of individual States do not share in this increase. All States reporting any appreciable number of cases reached a maximum at the same time (week of May 18), whereas the normal seasonal peak occurs a month or so earlier.

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports. These summaries include only the eight important communicable diseases for which the Public Health Service receives regular weekly reports from the State health officers.

Meningococcus meningitis cases reported in each State for recent weeks of 1935 [1] *and comparison of 20-week period with preceding years*

Division and State	Cases reported for 20 weeks ended—			Cases reported in 1935 for week ended—								
	Apr. 22 1933	Apr. 21 1934	Apr. 20 1935	Apr. 27	May 4	May 11	May 18	May 25	June 1	June 8	June 15	June 22
All States [2]	1,643	1,083	2,339	174	175	177	179	152	147	161	108	------
New England:												
Maine	5	2	3	0	0	0	0	0	0	0	0	0
New Hampshire	1	1	1	0	0	0	0	0	0	1	0	0
Vermont	0	0	0	0	0	0	0	0	0	0	0	0
Massachusetts	20	29	28	3	4	2	0	2	3	0	1	1
Rhode Island	0	2	10	2	1	1	0	3	2	2	0	0
Connecticut	19	11	13	0	0	1	1	0	0	1	0	1
Middle Atlantic:												
New York	100	72	197	26	24	19	35	12	23	29	15	28
New Jersey	39	22	28	3	5	2	3	3	6	4	5	5
Pennsylvania	110	55	96	5	9	7	2	9	9	2	4	15
East North Central:												
Ohio	26	34	203	27	6	27	10	13	14	7	6	9
Indiana	76	43	54	4	7	3	6	4	0	8	1	1
Illinois	363	161	255	19	29	17	24	20	16	19	10	4
Michigan	42	23	25	4	2	5	0	3	2	0	2	2
Wisconsin	27	43	44	2	1	1	1	2	0	1	0	1
West North Central:												
Minnesota	24	10	26	0	2	0	0	3	0	1	4	2
Iowa	43	25	39	3	5	3	2	2	0	2	4	0
Missouri	79	47	122	11	14	7	20	7	8	10	6	4
North Dakota	13	8	8	0	1	0	0	0	0	0	3	1
South Dakota	11	5	6	1	0	1	0	0	0	0	0	0
Nebraska	22	7	56	1	2	3	2	1	1	1	2	1
Kansas	33	24	49	1	1	2	1	3	3	1	0	0
South Atlantic:												
Delaware	2	4	0	0	0	0	0	0	0	0	1	1
Maryland	24	5	60	9	9	12	9	8	8	10	9	8
District of Columbia	15	7	99	4	9	11	8	10	6	10	0	11
Virginia	41	62	94	5	7	11	23	6	2	18	10	4
West Virginia	11	35	45	1	11	5	4	1	3	1	4	3
North Carolina	30	22	56	2	0	2	3	2	3	1	5	3
South Carolina	10	0	25	0	0	1	0	0	1	0	0	0
Georgia	26	14	11	0	0	2	1	0	0	0	0	6
Florida	7	3	11	0	0	1	0	0	0	2	0	1
East South Central:												
Kentucky	39	20	75	10	0	6	2	2	5	1	1	5
Tennessee	53	45	104	6	7	4	7	7	3	8	2	0
Alabama	28	15	48	6	1	1	0	1	0	4	0	1
Mississippi	15	7	23	0	0	1	0	1	2	0	0	2
West South Central:												
Arkansas	18	13	32	0	3	2	0	0	1	0	0	0
Louisiana	30	7	16	0	0	0	1	1	1	1	0	1
Oklahoma	54	40	67	2	0	4	1	1	1	6	0	1
Texas	37	53	76	0	1	0	3	6	6	1	4	2
Mountain: [2]												
Montana	5	7	24	2	1	2	0	0	1	1	1	0
Idaho	3	2	3	1	0	0	1	0	0	0	0	0
Wyoming	2	2	5	0	0	0	0	0	1	0	0	0
Colorado	26	6	17	0	1	0	0	1	0	0	0	0
New Mexico	10	10	28	0	0	0	0	1	3	0	1	0
Arizona	8	14	13	1	0	2	0	2	4	0	1	0
Utah	11	3	3	0	0	0	0	0	0	0	0	0
Pacific:												
Washington	12	15	24	4	3	3	2	1	1	0	2	1
Oregon	7	2	16	1	2	0	2	0	4	4	1	0
California	66	46	161	8	7	6	5	14	7	4	3	8

[1] See PUBLIC HEALTH REPORTS for June 7, May 10, and Apr. 12, 1935, for weekly data by geographic areas for earlier periods of 1935.
[2] Nevada excluded.

Poliomyelitis.—Two hundred and forty cases of poliomyelitis were reported for the 4-week period ended June 15, as compared with 92 cases in the preceding 4-week period. Although an increase is to be expected at this time of year, unusual prevalence is reported from

certain States. The accompanying table gives the number of cases reported by weeks since May 18 in all States with a total of 5 cases or more during the period.

Cases of poliomyelitis reported in certain States, by weeks, May 19–June 15, 1935

State	Week ended—				
	May 25	June 1	June 8	June 15	Total
New York	2	1	1	1	5
New Jersey	1	2	2	1	6
North Carolina	18	25	17	57	117
Louisiana	2	4	2	7	15
California	6	3	9	20	38
All other	9	15	20	15	59
All States	38	50	51	101	240

Typhoid fever.—The number of cases of typhoid fever continues to remain below the figures for the corresponding periods of previous years, but a seasonal increase is observable. A total of 981 cases was reported for the 4-week period ended June 15, as compared with 629 for the preceding 4 weeks.

Scarlet fever.—The normal seasonal decrease in the prevalence of scarlet fever is in progress, the weekly numbers of cases reported since May 18 being 6,494, 5,834, 5,385, and 4,733, respectively—a total of 22,446 for the 4-week period as compared with 27,821 cases for the preceding 4-week period. The rate of incidence continues well above previous years, however, especially in the East North Central, West North Central, South Atlantic, and Mountain and Pacific groups of States. For all States the excess over last year at this time is about 40 percent.

Taking the past season as a whole, the increased incidence of scarlet fever calls for special note. The numbers of cases reported for 36 weeks ended June 15, 1935, and for corresponding periods of 5 preceding years (these periods containing approximately 90 percent of the reported cases for the year) for the country as a whole are as follows:

Year:	*Reported cases*	*Ratio to 1929–30*
1929–30	151, 031	1. 00
1930–31	167, 641	1. 11
1931–32	176, 014	1. 17
1932–33	181, 640	1. 20
1933–34	187, 024	1. 24
1934–35	220, 592	1. 46

Part of the increase may be ascribed to better reporting.

Diphtheria.—The incidence of diphtheria remains about the same as in corresponding periods of the 2 preceding years. A seasonal decline is shown for the current period, the total number of cases for

the 4-week period ended June 15 being 1,686 as compared with 2,044 for the preceding 4 weeks. The only geographic area showing an increase over last year is the East North Central.

Smallpox.—For the week ended June 15, 146 cases of smallpox were reported, as compared with 215 for the preceding week. Certain districts, however, have reported a much higher incidence at this season than for corresponding periods of the last 3 years, especially the West North Central and Mountain and Pacific. In the 4-week period under report, cases were reported mostly from Nebraska (149), Kansas (127), Washington State (127), California (64), Texas (52), Minnesota (35), Wisconsin (33), and Wyoming (30). No cases were reported from the New England or Middle Atlantic States and only 4 from the South Atlantic.

Influenza.—The number of cases of influenza being reported is about the same as in preceding years at this season. The total was 2,073 for the 4-week period ended June 15 as compared with 3,358 for the preceding 4 weeks.

Measles.—In the 4-week period ended June 15, 91,251 cases of measles were reported as compared with 123,291 for the preceding 4 weeks. The incidence continues at about the same level as in 1934 and much higher than in the 4 preceding years. The comparison by geographical areas is as follows:

Section	Cases reported for 4-week period ended June 15, 1935	Corresponding period in 1934	Corresponding median for period 1929-33
All regions	91, 251	90, 542	59, 907
New England and Middle Atlantic	36, 998	23, 139	24, 617
East North Central	31, 944	27, 981	17, 695
West North Central	6, 085	6, 061	3, 996
South Atlantic	3, 716	15, 314	4, 776
East and West South Central	2, 032	8, 602	2, 044
Mountain and Pacific	10, 476	9, 445	5, 036

Deaths, all causes.—The average annual death rate from all causes in large cities, as reported by the Bureau of the Census, for the 4 weeks ended June 15 was 11.3 per 1,000 persons as compared with 11.1 for the corresponding period in 1934, 10.6 in 1933, 10.7 in 1932, and 11.0 in 1931. The current rate is thus higher than in any year since 1930. If the period of the year to June 15 is considered, the rate (12.3) is about the same as for the corresponding period of 1934 and 1932, higher than that for 1933, and below that for 1931 and earlier years.

MALARIA EPIDEMIC IN AURORA, OHIO

By R. N. Hoyt, Ph. D., *Associate in Parasitology, School of Medicine, Western Reserve University*, and R. D. Worden, M. D., *Health Commissioner, General Health District, Portage County, Ohio*

Malaria, once prevalent in many districts of Ohio, is now rare and sporadic. No cases have been reported in Aurora since the organization of the health district in 1920. It is probable, therefore, that it is not endemic in Aurora and that the epidemic here reported was due to the introduction of an infected individual. Evidence as to the vector and the original infected person is incomplete, but the facts concerning the outbreak should be of interest to physicians and health officers.

Aurora is an incorporated village located about 30 miles southeast of Cleveland. According to the Bureau of the Census, the population in 1930 was a little more than 1,000, about half of whom resided in the village proper. At the west end of the village are two attractive inns patronized by tourists. The east end of the village, less than a mile away, has a golf course, railroad station, and two stores.

The chronology of the epidemic was as follows: On September 3, 1934, 7 patients were reported with recurrent chills and fever, in the blood of 2 of whom the malaria parasite had been detected. The publicity given these reports aided in the discovery and notification of a total of 22 cases with onsets on or before September 3. Ten additional cases with onsets in September and 5 cases with onsets in October have been reported, bringing the total up to 37. The distribution of these cases according to the date of the first chill was as follows:

Date	Number of cases	Date	Number of cases	Date	Number of cases
Prior to Aug. 21	1	Sept. 2	3	Oct. 5	1
On Aug. 21	2	3	1	7	1
24	1	5	1	17	1
25	5	7	1	20	1
26	2	8	2	23	1
27	1	12	1		
28	1	16	2		
29	1	20	2		
30	4	24	1		

The difficulties and delays in diagnosis early in the epidemic were due in part to the mildness of the symptoms with consequent failure to seek medical advice. In other instances incorrect diagnoses were made by physicians. Headache, fever, and pain in the back or legs simulated influenza. Vomiting at onset occurred in 11 cases, chiefly among children and young persons. In certain cases a diagnosis of simple gastritis was made.

The malaria parasite was *Plasmodium vivax*. Eleven of the patients had daily (quotidian) chills either throughout their illness or after 1 or 2 typical 48-hour (tertian) cycles. Blood smears from some of these cases showed the presence of two groups of parasites (young and old schizonts), due presumably to multiple infection.

The geographic distribution showed a remarkable concentration in relation to the first case, D. B., and to the pond west of the golf course. All but nine resided within a mile of the pond, and a majority of these within a quarter of a mile. Six of the remainder resided close together on farms 2 miles southeast of the village, but all had made visits to the village.

Twenty-four of the patients were males and 13 were females. Seven were under 10, and 3 were over 60 years of age. The youngest was 4 and the oldest 71.

Efforts were made to determine the original source of the infection. R. B., a house painter, reported having had malaria in Florida in April and of having a relapse in Aurora in May. Thick blood smears made on two occasions, a week apart, in September, failed to show malaria parasites. The interval between relapse in this patient and the onset of the epidemic, and the fact that he resided at the west end of town, make it seem unlikely that he was the immediate source. However, he may have infected D. B., a section hand living in a practically unscreened "shanty" near the center of the outbreak and near the pond previously mentioned. D. B. was found sick in bed on September 8. A blood smear showed *P. vivax*. He had been ill almost continuously since June with weakness and recurring chills.

A mosquito survey revealed abundant breeding of *Anopheles punctipennis* along the grassy banks of the Aurora branch of the Chagrin River, which winds through the golf course and through the north side of the village. Adults of this species were found in the home of one patient only. Adults of *Anopheles quadrimaculatus* were found at the homes of 2 patients in the village and of 1 living 2 miles southeast. The same species was also found in two other village residences in which malaria did not occur. The breeding place of *A. quadrimaculatus* has not been established with certainty, probably owing to the fact that oiling operations were started in the pond west of the golf course before the mosquito survey was begun. Dissection of six adult females of this species did not result in the demonstration of oocysts. It is believed, however that *A. quadrimaculatus* was the responsible vector, because *A. punctipennis* has not been demonstrated as the vector in epidemics occurring in the United States.

Control measures were started promptly by the health commissioner. The pond at the center of the outbreak was oiled at once,

and other breeding places near the village were oiled within a few days. Oiling was continued at 10-day intervals until cold weather set in. On advice of the State Department of Health, patients were required to stay within screened enclosures until 4 negative blood smears, taken at least 24 hours apart, were obtained. This regulation was supplemented by an agreement signed by the patient or parent to complete 8 weeks of quinine or 5 days of atabrine therapy and to submit to a final blood examination after treatment had been completed. Attempts were made to render infected individuals noninfective in order to prevent a recurrence of the outbreak during the following year.

COURT DECISION ON PUBLIC HEALTH

Discharge by municipality of raw sewage into stream from which another municipality takes its water supply.—(North Carolina Supreme Court; *Town of Smithfield et al.* v. *City of Raleigh et al.*, 178 S. E. 114; decided Jan. 28, 1935.) The city of Raleigh discharged its untreated sewage into two creeks at points approximately 33 miles from the town of Smithfield. The sewage so discharged flowed through the said creeks into the Neuse River. The town of Smithfield took its water supply from the Neuse River below the points on said river where the sewage entered it. Section 7125 of the Consolidated Statutes provided as follows:

No person, firm, corporation, or municipality shall flow or discharge sewage above the intake into any drain, brook, creek, or river from which a public drinking water supply is taken, unless the same shall have been passed through some well-known system of sewage purification approved by the State board of health; and the continued flow and discharge of such sewage may be enjoined upon application of any person.

If any person, firm, or corporation, or officer of any municipality having a sewerage system in charge shall violate the provisions of this section he shall be guilty of a misdemeanor.

The plaintiffs asked that the defendants immediately be enjoined from discharging untreated sewage into the said creeks and through said creeks into the waters of the Neuse River. The trial court denied the petition and dismissed the action, but the judgment also provided:

* * * This judgment shall not be taken hereafter or held to be an estoppel against the plaintiffs, in case another action is brought for the same cause, whenever it shall be made to appear that the defendants are in a position to comply with the statute which forms the basis of this action.

The supreme court, upon appeal by the plaintiffs, stated the question before the court as follows:

Does Consolidated Statutes, section 7125, impose upon the trial judge the mandatory duty of enjoining a municipality from discharging raw sewage into a stream from which another municipality takes its water supply?

The pertinent findings of fact made by the trial judge, as stated by the appellate court, were:

* * * (a) That the discharge of raw sewage into Neuse River, in view of the facts and circumstances, had produced no injury to the plaintiff, and there were no facts tending to show immediate menace to the inhabitants of the plaintiff municipality; (b) that the defendant is not in a financial condition to immediately install purification plants necessary to comply with the provision of the statute.

The lower court's judgment was affirmed by the supreme court, the opinion of the latter court stating in part as follows:

The principal cases in this jurisdiction construing Consolidated Statutes, section 7125, are: [Citations.] These cases proceed upon the theory that a violation of Consolidated Statutes, section 7125, authorizes the exercise of the restraining power of a court of equity, irrespective of the fact that no injury has actually occurred. It is the threat or potentiality of menace rather than the accomplished fact thereof that warrants the interposition of equitable power. Notwithstanding, common sense is older than the common law, statutory law, or equity, and this saving grace of human experience must be reckoned with in determining the application of technical rules of behavior. If the trial judge had granted the prayer of the plaintiffs and had immediately restrained the city of Raleigh from using its sewerage system and plugged the entire system with the force of law, untold misery and suffering would be entailed upon a population of over 40,000 people. The statute recognizes such practical exigencies of social life and declares that "the continued flow and discharge of such sewage may be enjoined upon application of any person" (Consolidated Statutes, section 7125). The words "may be enjoined" clearly demonstrate that surrounding facts and circumstances must be considered in entering a peremptory order of the kind sought in this action. The cases referred to all disclose that a reasonable time was accorded for complying with the statute.

Manifestly Raleigh must comply with Consolidated Statutes, section 7125. This statute pronounces the public policy of the State, against which temporizing and unreasonable delay will not avail. This idea was doubtless in the mind of the trial judge because it is particularly specified in the judgment that the same "shall not be taken hereafter or held to be an estoppel against the plaintiffs, in case another action is brought for the same cause", etc.

DEATHS DURING WEEK ENDED JUNE 15, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended June 15, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,621	7,382
Deaths per 1,000 population, annual basis	10.6	10.3
Deaths under 1 year of age	524	522
Deaths under 1 year of age per 1,000 estimated live births	48	49
Deaths per 1,000 population, annual basis, first 24 weeks of year	12.3	12.2
Data from industrial insurance companies:		
Policies in force	67,827,973	67,771,847
Number of death claims	13,418	12,523
Death claims per 1,000 policies in force, annual rate	10.3	9.6
Death claims per 1,000 policies, first 24 weeks of year, annual rate	10.5	10.7

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 22, 1935, and June 23, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 22, 1935, and June 23, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934
New England States:								
Maine			1	1	188	2	0	0
New Hampshire					2	69	0	0
Vermont		3			39	25	0	0
Massachusetts	9	11			324	580	1	1
Rhode Island	1	1			362	46	0	0
Connecticut	6	6			361	178	1	0
Middle Atlantic States:								
New York	28	54	[1] 11	[1] 1	2,337	794	28	1
New Jersey	7	24	1	2	1,325	521	5	1
Pennsylvania	37	53			1,644	1,870	15	0
East North Central States:								
Ohio	20	12	4	3	653	472	9	1
Indiana	7	19	9	9	66	240	1	0
Illinois [3]	46	14	13	6	976	1,308	4	5
Michigan	8	8	1	1	1,977	283	2	3
Wisconsin	3	10	28	7	1,561	1,432	1	3
West North Central States:								
Minnesota	4	2	4		140	53	2	0
Iowa	7	6			41	129	0	0
Missouri	14	27	51	20	95	123	4	2
North Dakota	2		1		31	102	1	0
South Dakota	1				9	86	0	0
Nebraska	8	6			50	30	1	0
Kansas	2	8	21		204	188	0	0
South Atlantic States:								
Delaware	1				15	31	1	0
Maryland [3]	4	2	2	1	119	397	8	2
District of Columbia [2]	6	3	1		12	21	11	2
Virginia [2, 4]	11	6			222	742	4	8
West Virginia	7	10	15		145	10[illegible]	3	0
North Carolina [4]	10	8		3	13	343	3	0
South Carolina [4]	7	1	52	99	21	62	0	0
Georgia [4]	8	13					6	0
Florida [4]	5	5			2	115	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 22, 1935, and June 23, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934
East South Central States:								
Kentucky	7	8	3	--------	131	321	5	3
Tennessee	3	3	15	5	33	131	0	2
Alabama [4]	3	8	17	18	35	191	1	0
Mississippi [3]	8	5	--------	--------	--------	--------	2	0
West South Central States:								
Arkansas	1	3	10	4	15	9	0	0
Louisiana	16	7	11	4	9	73	1	0
Oklahoma [5]	5	1	26	20	13	79	1	0
Texas [4]	22	34	30	81	22	176	2	0
Mountain States:								
Montana [3]	1	--------	3	--------	112	21	0	0
Idaho	--------	1	1	2	5	2	0	0
Wyoming [3]	--------	--------	--------	--------	54	65	0	5
Colorado [3]	10	3	--------	--------	132	456	0	0
New Mexico	--------	1	--------	--------	13	33	0	0
Arizona	--------	2	2	--------	6	13	0	0
Utah [3]	--------	--------	--------	--------	5	6	0	0
Pacific States:								
Washington	--------	3	--------	--------	269	198	1	0
Oregon	5	2	14	17	109	24	0	0
California [3]	36	35	24	37	928	490	8	2
Total	386	428	371	291	14, 825	12, 630	133	41
First 25 weeks of year	15, 101	17, 371	101, 981	46, 338	656, 208	634, 539	3, 544	1, 342

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934
New England States:								
Maine	0	0	13	10	0	0	2	0
New Hampshire	1	1	9	5	0	0	0	1
Vermont	0	0	5	10	0	0	0	0
Massachusetts	2	2	155	168	0	0	2	0
Rhode Island	0	0	14	12	0	0	0	2
Connecticut	1	0	46	17	0	0	1	0
Middle Atlantic States:								
New York	12	8	540	344	0	0	10	15
New Jersey	1	2	94	84	0	0	4	4
Pennsylvania	0	1	353	359	0	0	9	29
East North Central States:								
Ohio	2	1	213	221	0	1	11	15
Indiana	1	0	[illegible]	35	1	1	1	3
Illinois [3]	0	1	661	290	1	1	12	27
Michigan	1	0	143	212	0	0	8	8
Wisconsin	1	1	311	242	6	7	0	3
West North Central States:								
Minnesota	0	0	92	49	4	2	11	1
Iowa	0	0	56	16	4	0	0	1
Missouri	0	0	18	20	2	1	9	18
North Dakota	0	0	31	26	0	0	1	1
South Dakota	0	0	5	5	15	0	0	0
Nebraska	0	0	33	10	34	5	4	1
Kansas	0	0	25	21	24	4	1	4
South Atlantic States:								
Delaware	0	0	3	4	0	0	1	0
Maryland [3]	0	0	40	26	0	0	4	7
District of Columbia [3]	0	0	7	7	0	0	0	0
Virginia [3] [4]	16	0	12	11	0	0	10	7
West Virginia	0	1	26	24	0	0	12	13
North Carolina [4]	60	0	13	15	3	0	18	13
South Carolina [4]	2	0	--------	1	0	0	32	15
Georgia [4]	0	0	5	2	13	0	53	50
Florida [4]	0	6	1	1	0	0	6	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 22, 1935, and June 23, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934	Week ended June 22, 1935	Week ended June 23, 1934
East South Central States:								
Kentucky	1	0	19	13	0	5	11	23
Tennessee	1	0	12	2	0	0	22	13
Alabama [4]	0	5	2	10	0	0	18	19
Mississippi [3]	0	0	4	1	0	0	16	9
West South Central States:								
Arkansas	1	0	6	2	3	0	16	14
Louisiana	3	1	11	6	0	0	21	25
Oklahoma [5]	0	1	14	5	1	2	14	6
Texas [4]	5	0	31	22	1	22	14	29
Mountain States:								
Montana [3]	1	1	15	8	3	0	3	2
Idaho	0	0			0	4	0	2
Wyoming [3]	0	0	14	2	26	2	0	1
Colorado [3]	0	0	61	15	1	4	0	1
New Mexico	1	1	5	9	2	0	4	7
Arizona	1	0	9	6	0	0	2	3
Utah [3]	0	0	39	2	0	0	1	0
Pacific States:								
Washington	0	2	34	35	16	6	1	1
Oregon	0	1	17	20	4	7	1	2
California	32	340	149	134	7	1	5	11
Total	146	376	3,420	2,539	171	75	371	416
First 25 weeks of year	865	1,761	168,735	138,219	4,700	3,482	4,084	4,710

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended June 22, 1935, 29 cases, as follows: Illinois, 1; District of Columbia, 2; Virginia, 1; Montana, 14; Wyoming, 8; Colorado, 2; California, 1.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended June 22, 1935, 29 cases, as follows: Virginia, 1; North Carolina, 1; South Carolina, 1; Georgia, 15; Florida, 1; Alabama, 4; Texas, 6.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May 1935										
Alabama	3	48	119	482	580	56	2	28	4	22
Arizona	9	23	50	1	240	1	3	235	0	10
Idaho	1	1	20		71		0	34	1	
Illinois	93	233	124	11	8,233		1	5,172	10	22
Kansas	9	32	20		3,205		0	217	133	9
Louisiana	3	65	31	104	208	19	12	28	0	41
Maryland	36	32	27	2	349		1	408	0	20
Michigan	13	42	8	9	19,328		3	1,446	0	16
Minnesota	8	50	7		2,437		4	1,537	64	9
Oklahoma [1]	9	26	169	44	294	23	3	30	11	14
Oregon	4	7	81		955		0	132	18	8
Pennsylvania	34	141			14,328	3	1	2,512	0	37
Rhode Island	11	2	3		2,349		0	67	0	1
Texas	10	140	377	1,388	402	37	2	117	26	43
Washington	6	13	40		1,960		6	258	151	11
West Virginia	14	54	116		1,689		2	275	0	44

[1] Exclusive of Oklahoma City and Tulsa.

May 1935

	Cases
Actinomycosis:	
Minnesota	1
Pennsylvania	1
Chicken pox:	
Alabama	161
Arizona	131
Idaho	8
Illinois	1,559
Kansas	233
Louisiana	27
Maryland	676
Michigan	1,299
Minnesota	407
Oklahoma [1]	41
Oregon	193
Pennsylvania	2,827
Rhode Island	154
Texas	403
Washington	579
West Virginia	158
Conjunctivitis:	
Maryland	1
Dengue:	
Alabama	1
Texas	11
Diarrhea:	
Maryland	7
Dysentery:	
Alabama (amoebic)	1
Arizona	37
Illinois (amoebic)	11
Illinois (amoebic carriers)	33
Illinois (bacillary)	5
Louisiana (amoebic)	2
Louisiana (bacillary)	1
Maryland	15
Michigan (amoebic)	1
Minnesota (amoebic)	1
Minnesota (bacillary)	2
Oklahoma [1]	4
Oregon (amoebic)	1
Texas (bacillary)	24
Washington (amoebic)	3
Epidemic encephalitis:	
Alabama	3
Idaho	1
Illinois	11
Kansas	7
Maryland	1
Michigan	3
Oregon	1
Pennsylvania	7
Washington	4
German measles:	
Alabama	28
Arizona	111
Illinois	3,959
Kansas	998
Maryland	618
Pennsylvania	5,539
Rhode Island	20
Washington	1,135
Hookworm disease:	
Louisiana	5

May 1935—Continued

	Cases
Impetigo contagiosa:	
Illinois	1
Maryland	7
Oklahoma [1]	3
Oregon	31
Lead poisoning:	
Illinois	1
Maryland	1
Michigan	1
Mumps:	
Alabama	69
Arizona	164
Idaho	10
Illinois	496
Kansas	531
Louisiana	4
Maryland	131
Michigan	1,102
Mumps	81
Oregon	543
Pennsylvania	3,228
Rhode Island	114
Texas	334
Washington	557
West Virginia	48
Ophthalmia neonatorum:	
Illinois	5
Louisiana	1
Maryland	2
Pennsylvania	2
West Virginia	1
Paratyphoid fever:	
Illinois	2
Kansas	2
Louisiana	2
Michigan	2
Texas	5
Puerperal septicemia:	
Illinois	1
Washington	1
Rabies in animals:	
Alabama	63
Illinois	40
Kansas	6
Louisiana	27
Maryland	1
Michigan	8
Washington	3
Rocky Mountain spotted fever:	
Idaho	12
Maryland	1
Oregon	11
Washington	1
Scabies:	
Maryland	1
Oklahoma [1]	3
Oregon	20
Septic sore throat:	
Illinois	1
Kansas	9
Louisiana	2
Maryland	15
Michigan	40
Oklahoma [1]	28
Oregon	9
Rhode Island	3

May 1935—Continued

	Cases
Septic sore throat—Cont.	
Washington	1
West Virginia	34
Tetanus:	
Alabama	5
Illinois	3
Louisiana	2
Maryland	2
Oklahoma [1]	3
West Virginia	1
Trachoma:	
Arizona	16
Illinois	47
Michigan	3
Oklahoma [1]	8
Rhode Island (delayed report)	3
Trichinosis:	
Illinois	1
Michigan	1
Minnesota	4
Tularaemia:	
Alabama	4
Illinois	2
Louisiana	3
Minnesota	3
Texas	5
Typhus fever:	
Alabama	14
Louisiana	2
Maryland	1
Undulant fever:	
Alabama	6
Illinois	20
Kansas	3
Louisiana	1
Maryland	1
Michigan	3
Minnesota	16
Oregon	2
Pennsylvania	5
Rhode Island	1
Texas	6
Washington	3
West Virginia	1
Vincent's infection:	
Illinois	14
Kansas	1
Maryland	14
Michigan	16
Oregon	7
Whooping cough:	
Alabama	162
Arizona	84
Idaho	1
Illinois	869
Kansas	319
Louisiana	12
Maryland	167
Michigan	1,207
Minnesota	193
Oklahoma [1]	102
Oregon	77
Pennsylvania	1,471
Rhode Island	57
Texas	286
Washington	88
West Virginia	46

[1] Exclusive of Oklahoma City and Tulsa.

PLAGUE-INFECTED RODENTS IN MODOC COUNTY, CALIF.

The Director of Public Health of California has reported positive findings for plague in 30 ground squirrels and 4 wood rats found in Modoc County, Calif., and received at the laboratory on May 8, June 1, and June 13 to 16, 1935. The 30 squirrels were found on ranches 1 mile west and northwest, 2 to 3 miles east, and 1 mile south of Alturas. The 4 wood rats were received on May 8 from a ranch 5 miles east and 2 miles south of Likely.

WEEKLY REPORTS FROM CITIES

City reports for week ended June 15, 1935

This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	1	------	0	1	3	1	0	0	0	1	29
New Hampshire:											
Concord	0	------	0	0	1	0	0	0	0	0	9
Nashua	0	------	------	0	------	0	0	------	0	0	------
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	------
Burlington	0	------	0	4	0	0	0	0	0	0	10
Massachusetts:											
Boston	10	------	1	69	21	42	0	9	0	9	209
Fall River	0	------	0	1	3	10	0	1	0	3	22
Springfield	0	------	0	53	0	8	0	0	0	3	34
Worcester	0	------	0	7	3	9	0	0	0	1	39
Rhode Island:											
Pawtucket	0	------	0	6	0	1	0	0	0	0	9
Providence	2	------	0	409	5	2	0	2	0	9	56
Connecticut:											
Bridgeport	1	------	0	12	0	12	0	2	0	1	29
Hartford	0	------	0	18	1	4	0	1	0	10	29
New Haven	0	1	0	76	2	0	0	0	0	0	36
New York:											
Buffalo	0	------	0	34	22	72	0	6	0	13	123
New York	24	------	2	1,324	123	319	0	81	2	120	1,373
Rochester	0	------	0	36	3	7	0	2	0	15	55
Syracuse	0	------	1	558	1	28	0	1	0	17	47
New Jersey:											
Camden	4	------	2	------	3	5	0	1	0	0	42
Newark	0	1	0	293	5	5	0	4	1	53	100
Trenton	0	------	0	0	3	11	0	3	0	1	39
Pennsylvania:											
Philadelphia	5	2	1	104	20	71	0	15	0	61	384
Pittsburgh	4	2	2	122	14	24	0	7	1	24	135
Reading	0	------	0	96	3	1	0	0	0	0	18
Scranton	0	------	------	10	------	9	0	------	0	0	------
Ohio:											
Cincinnati	4	------	0	5	7	8	0	7	0	4	110
Cleveland	8	15	1	296	18	23	0	15	0	38	213
Columbus	1	------	0	63	1	11	0	3	0	4	71
Toledo	0	------	0	72	3	8	0	5	3	10	76
Indiana:											
Fort Wayne	7	------	0	0	2	2	0	1	0	0	18
Indianapolis	0	------	0	36	13	10	0	4	2	8	89
South Bend	1	------	0	1	2	1	0	0	0	0	19
Terre Haute	0	------	0	2	0	0	0	0	0	0	18
Illinois:											
Chicago	29	2	1	500	47	536	0	41	0	64	694
Springfield	0	------	0	3	2	5	0	0	0	3	16
Michigan:											
Detroit	0	1	1	359	18	58	0	17	1	110	251
Flint	1	------	0	0	5	5	0	1	0	2	26
Grand Rapids	1	------	0	68	2	21	0	0	0	22	35
Wisconsin:											
Kenosha	0	------	0	2	1	11	0	0	0	1	7
Milwaukee	2	------	0	458	7	80	0	4	0	48	86
Racine	0	------	0	135	0	18	0	0	0	17	16
Superior	0	------	0	6	2	0	0	0	0	0	9
Minnesota:											
Duluth	0	------	0	14	2	3	0	1	2	1	19
Minneapolis	2	------	1	8	5	73	0	3	5	1	105
St. Paul	0	------	0	18	2	40	2	0	3	5	51
Iowa:											
Davenport	0	------	------	1	------	3	0	------	0	0	------
Des Moines	5	------	0	24	0	2	0	0	0	0	23
Sioux City	1	------	------	2	------	2	0	------	0	1	------
Waterloo	1	------	------	1	------	11	0	------	0	0	------
Missouri:											
Kansas City	0	------	1	35	0	9	0	4	0	4	98
St. Joseph	1	------	0	6	1	0	0	0	0	8	5
St. Louis	8	------	0	10	12	7	0	6	2	6	176

City reports for week ended June 15, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
North Dakota:											
Fargo	0	------	0	2	1	12	0	0	0	1	3
Grand Forks	0	------	------	1	------	0	0	------	0	0	------
South Dakota:											
Aberdeen	0	------	------	2	------	0	0	------	0	0	------
Nebraska:											
Omaha	0	------	0	31	8	5	1	2	0	0	59
Kansas:											
Topeka	0	------	0	62	4	2	0	0	0	25	24
Wichita	1	8	0	15	1	2	0	0	0	2	22
Delaware:											
Wilmington	1	------	0	4	2	3	0	1	0	2	27
Maryland:											
Baltimore	1	2	2	21	13	22	0	14	4	9	211
Cumberland	0	------	0	2	0	0	0	0	0	0	12
Frederick	0	------	0	0	0	0	0	0	0	0	5
District of Columbia:											
Washington	2	------	0	30	17	26	0	10	0	1	157
Virginia:											
Lynchburg	0	------	0	1	1	8	0	0	0	40	9
Richmond	1	------	0	17	0	1	0	5	3	0	57
Roanoke	3	------	0	7	1	1	0	0	0	2	15
West Virginia:											
Charleston	1	------	0	4	1	1	0	1	0	0	29
Huntington	0	------	------	0	------	3	0	------	0	0	------
Wheeling	0	------	1	18	0	4	0	0	1	0	15
North Carolina:											
Raleigh	0	------	0	0	0	0	0	0	0	1	13
Wilmington	0	------	0	0	2	1	0	0	0	7	17
Winston-Salem	0	------	0	0	0	0	0	1	4	0	13
South Carolina:											
Charleston	0	3	0	0	1	1	0	1	1	0	17
Columbia	------	------	------	------	------	------	------	------	------	------	------
Greenville	0	------	0	0	2	0	0	0	0	2	14
Georgia:											
Atlanta	1	2	0	0	5	2	0	3	1	4	73
Brunswick	0	------	0	1	0	0	0	0	0	0	5
Savannah	0	3	0	0	4	0	0	1	0	1	38
Florida:											
Miami	2	------	0	1	1	0	0	2	0	0	30
Tampa	1	------	0	0	2	1	0	0	12	6	15
Kentucky:											
Ashland	0	------	------	5	------	0	0	------	0	0	------
Lexington	0	------	0	8	2	2	0	2	0	0	15
Tennessee:											
Memphis	2	------	2	0	2	3	0	6	0	3	59
Nashville	0	------	0	6	5	3	0	1	2	7	52
Alabama:											
Birmingham	2	------	0	16	4	3	0	4	4	3	71
Mobile	0	------	0	0	0	0	0	1	1	0	27
Montgomery	0	------	------	0	------	0	0	------	0	0	------
Arkansas:											
Fort Smith	0	------	------	0	------	0	0	------	0	11	------
Little Rock	0	------	0	2	2	0	0	0	0	1	3
Louisiana:											
New Orleans	6	1	1	19	6	2	0	15	1	1	157
Shreveport	0	------	0	1	6	1	0	4	0	3	56
Oklahoma:											
Oklahoma City	0	------	0	0	4	0	0	2	0	0	50
Tulsa	0	------	------	0	------	0	0	------	0	25	------
Texas:											
Dallas	3	1	1	0	5	3	1	3	0	2	66
Fort Worth	0	------	0	0	2	2	0	1	0	1	29
Galveston	0	------	0	0	3	0	0	3	0	0	24
Houston	1	------	0	2	2	0	0	9	1	1	68
San Antonio	4	------	1	2	7	1	0	3	0	0	53
Montana:											
Billings	0	------	0	4	0	0	0	1	0	0	9
Great Falls	0	------	0	3	0	1	0	0	0	6	10
Helena	0	------	0	1	0	0	0	0	0	4	3
Missoula	0	------	0	0	2	0	0	0	0	0	7

City reports for week ended June 15, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Idaho:											
Boise	0	------	0	1	0	0	0	0	0	0	8
Colorado:											
Denver	1	------	0	85	5	38	0	3	0	0	90
Pueblo	0	------	0	15	0	10	0	0	0	3	9
New Mexico:											
Albuquerque	0	------	0	0	1	0	0	3	0	3	10
Arizona:											
Utah:											
Salt Lake City	0	------	1	2	4	63	0	0	0	78	32
Nevada:											
Reno	0	------	------	0	------	0	0	------	0	0	------
Washington:											
Seattle	0	------	0	207	5	14	0	3	1	1	70
Spokane	0	------	0	30	1	4	0	0	0	2	20
Tacoma	0	------	0	0	1	0	4	0	0	0	26
Oregon:											
Portland	0	2	0	35	6	4	0	3	2	4	68
Salem	0	------	------	0	------	0	0	------	0	0	------
California:											
Los Angeles	10	18	1	58	8	34	3	28	2	17	290
Sacramento	0	------	0	81	0	16	0	2	0	0	22
San Francisco	1	------	0	103	6	18	0	5	1	22	122

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	0	0	1
Rhode Island:			
Providence	1	1	0
New York:			
New York	13	5	1
New Jersey:			
Newark	1	0	0
Pennsylvania:			
Pittsburgh	1	0	0
Ohio:			
Cincinnati	7	2	0
Cleveland	4	0	0
Illinois:			
Chicago	9	4	0
Michigan:			
Detroit	0	1	0
Minnesota:			
Minneapolis	2	0	0
Iowa:			
Des Moines	2	0	0
Missouri:			
Kansas City	2	1	0
Nebraska:			
Omaha	2	2	0
Delaware:			
Wilmington	1	0	0
Maryland:			
Baltimore	9	2	0
District of Columbia:			
Washington	0	2	0
South Carolina:			
Charleston	1	0	0
Florida:			
Tampa	1	0	0
Tennessee:			
Memphis	0	0	1
Louisiana:			
New Orleans	0	0	2
Oklahoma:			
Tulsa	2	0	0
Texas:			
Dallas	1	0	0
Fort Worth	0	0	2
Washington:			
Seattle	1	0	0
Spokane	1	0	0
Oregon:			
Portland	1	1	0
California:			
Los Angeles	1	0	16
Sacramento	2	1	0
San Francisco	1	0	1

Epidemic encephalitis.—Cases: Toledo, 1; Baltimore, 1; Birmingham, 3.

Pellagra.—Cases: Lynchburg, 1; Winston-Salem, 1; Charleston, S. C., 1; Savannah, 4; Birmingham, 5; Montgomery, 1; Dallas, 1; Los Angeles, 1; San Francisco, 1.

Typhus fever.—Cases: Newark, 1; Savannah, 1; New Orleans, 1.

FOREIGN AND INSULAR

GREAT BRITAIN

England and Wales—Infectious diseases—13 weeks ended March 30, 1935.—During the 13 weeks ended March 30, 1935, cases of certain infectious diseases were reported in England and Wales, as follows:

Disease	Cases	Disease	Cases
Diphtheria	23,574	Puerperal pyrexia	1,513
Ophthalmia neonatorum	1,086	Scarlet fever	36,256
Pneumonia	16,928	Smallpox	0
Puerperal fever	605	Typhoid fever	263

England and Wales—Vital statistics—First quarter ended March 31, 1935.—During the quarter ended March 31, 1935, 146,530 live births and 132,648 deaths were registered in England and Wales. The following statistics are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar General of England and Wales. The figures are provisional.

Birth and death rates in England and Wales, quarter ended Mar. 31, 1935

Annual rates per 1,000 population:	
Live births	14.70
Stillbirths	.65
Deaths, all causes	13.30
Deaths under 1 year of age	[1] 68
Deaths from—	
Diarrhea and enteritis (under 2 years of age)	[1] 5.50
Annual rates per 1,000 population—Continued	
Deaths from—Continued	
Diphtheria	0.12
Influenza	.27
Measles	.03
Scarlet fever	.02
Violence	.55
Whooping cough	.04

LATVIA

Notifiable diseases—January–March 1935.—During the months of January, February, and March 1935 cases of certain notifiable diseases were reported in Latvia, as follows:

Disease	January	February	March	Disease	January	February	March
Botulism		1	1	Poliomyelitis	3	3	3
Cerebrospinal meningitis	6	6	16	Puerperal septicemia	13	10	16
Diphtheria	130	115	111	Scarlet fever	674	609	526
Erysipelas	35	35	39	Scurvy		1	2
Influenza	158	161	279	Tetanus	1	1	2
Leprosy	2	1		Trachoma	70	37	51
Lethargic encephalitis		1	1	Typhoid fever	47	36	42
Measles	84	90	219	Typhus fever	2		1
Mumps	12	18	58	Undulant fever			2
Paratyphoid fever	4	5	2	Whooping cough	61	49	74

[1] Per 1,000 live births.

PUERTO RICO

Notifiable diseases—4 weeks ended June 15, 1935.—During the 4 weeks ended June 15, 1935, cases of certain notifiable diseases were reported in the municipalities of Puerto Rico as follows:

Disease	Cases	Disease	Cases
Chicken pox	133	Paratyphoid fever	4
Diphtheria	47	Pellagra	1
Dysentery	20	Scarlet fever	1
Filariasis	2	Syphilis	64
Influenza	24	Tetanus	2
Leprosy	1	Trachoma	1
Malaria	639	Tuberculosis	806
Measles	95	Typhoid fever	16
Mumps	62	Whooping cough	127
Ophthalmia neonatorum	4		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE —A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for June 28, 1935, pp 875–890. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued July 26, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

Indo-China—Pnom-Penh.—During the week ended June 15, 1935, 1 case of cholera was reported at Pnom-Penh, Indo-China.

Philippine Islands—Rizal Province.—Cholera has been reported in Rizal Province, Philippine Islands, as follows: On June 22, 1935, 1 case at Caloocan, and 1 case at San Felipe Neri. On June 24, 1935, 1 fatal case was reported at Navotas. All three localities are adjacent to Manila.

Plague

Ecuador—Loja Province.—During the month of May 1935, 4 cases of plague with 1 death were reported in Loja Province, Ecuador.

Egypt.—During the week ended June 15, 1935, 2 cases of plague were reported in Minya Province, and 1 case of plague with 1 death was reported in Qena Province, Egypt.

Tunisia—Tunis.—One case of bubonic plague, with 1 death, was reported in Tunis on June 17, 1935.

United States—California.—A report of plague-infected rodents in California appears on page 902 of this issue of PUBLIC HEALTH REPORTS.

Typhus fever

China—Manchuria—Harbin.—A report dated June 20, 1935, states that approximately 400 cases of typhus fever with 20 percent of fatalities were reported at Harbin, Manchuria, China, since June 1.

141522°—35——2

Almost all the cases are outside the Chinese city. All preventive measures are being taken.

Irish Free States—Waterford County—Lismore.—On June 8, 1935, 1 case of typhus fever was reported at Lismore, Waterford County, Irish Free State.

Yellow fever

Dahomey—Parakou.—During the period May 21–31, 1935, 1 suspected case of yellow fever with 1 death was reported at Parakou, Dahomey.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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BY THE UNITED STATES PUBLIC HEALTH SERVICE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg Gen. R. C. Williams, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

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Librarians and others should preserve their copies for binding, as the Public Health Service is unable to supply the general demand for bound copies. Indexes will be supplied upon request.

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PUBLIC HEALTH REPORTS

VOL. 50 JULY 12, 1935 NO. 28

TULARAEMIA

Observations on a Strain of Low Initial Virulence from Rabbit Ticks[1]

By Cornelius B. Philip, *Associate Entomologist*, and Gordon E. Davis, *Bacteriologist, United States Public Health Service*

In the fall of 1934 a strain of *Bacterium tularense* of very low initial virulence for guinea pigs was isolated by the writers from rabbit ticks, *Haemaphysalis leporis-palustris*, from British Columbia. The ticks concerned were part of a shipment of 900 received on September 4 from Prof. G. J. Spencer, acting in charge of the Dominion Entomological Laboratory at Kamloops. They were from six snowshoe rabbits shot near Rayleigh on August 26 and 28.

On September 6 these ticks were macerated in lots of 100, and the material from each lot was injected intraperitoneally into 2 guinea pigs. Eighteen test animals were thus used. After an incubation period of 2 to 6 days, 8 of the guinea pigs developed low fever of short duration. Three of these also showed a coincident slight scrotal swelling. On the 6th day of the test a lineal series of transfers was started from one of the guinea pigs (64533) of the last group. This animal had shown a temperature of 40° C. on both the 4th and 5th days, with a slight scrotal involvement.

This series of transfers was started on the chance that the febrile and scrotal reactions noted might be due to a mild spotted fever infection and in the hope that, if this were the case, a strain could be established. The series was continued through seven passages. It soon became apparent (in second-transfer animals) that, even if spotted fever virus were present, there was also some contaminating agent or agents. Although the lesions in the later transfers suggested tularaemia, and a pure culture of *Bacterium tularense* was eventually isolated, the possibility of tularaemia infection was not seriously considered until the fifth passage. The prior transfers, therefore, were made according to methods used in the isolation and maintenance of strains of spotted fever virus. Brief records of the test animals will be given below.

[1] From the Rocky Mountain Laboratory of the U. S. Public Health Service at Hamilton, Mont.

The first-transfer guinea pigs (64921 and 64922) each received intraperitoneally 2 cc of heart blood taken from the source animal. The latter was afebrile on this day and remained so until October 4, in spite of the fact that it was injected with 1 cc of proved potent spotted fever virus on September 21. It was finally discarded in apparent good health with the other 17 original, tick-inoculated animals, on October 17, the forty-first day after the start of the test. The significance of these results so far as spotted fever is concerned will be discussed elsewhere.

Of the 2 first-transfer guinea pigs, 1 remained afebrile until temperature-taking was discontinued on the fourteenth day. It was discarded in an apparently healthy condition 34 days after receiving the inoculum. The other guinea pig, though afebrile, was sacrificed on the sixth day following 2 days of slight temperature elevation (39.6° C) and second-transfer guinea pigs, 65042 and 65043, each received 3 cc of a mixture of testicle and tunica washings and triturated spleen. The tissues of the donor animal appeared normal.

Of the second-transfer guinea pigs, 65042 died afebrile on the tenth day. The spleen was slightly enlarged and there was an excess of fluid in the peritoneal cavity. The other, 65043, showed low fever on the ninth and tenth days (40° C.). It was killed on the latter day and 2 third-transfer animals each received the same kind and amount of material as used for the second transfer. The spleen was enlarged (×2.5) and there were a few relatively large, whitish, superficial nodules. The possibility that these lesions might have been due to tularaemia was suggested by the source of the original inoculum, but was not seriously considered at that time.

Both third-transfer guinea pigs were febrile. Guinea pig 65293 was killed and necropsied on the ninth day. The spleen was enlarged (×2.5) and showed small grayish necrotic foci in cross section, not evident on the surface. The other (65292) was killed and necropsied on the seventh day, and showed a spleen with slight exudate and enlarged three times. Again there were scattered, large, white nodules on the surface.

Two fourth-transfer animals (65614 and 65615) were injected, the former with ground spleen tissue, the latter with 3 cc of testicular and tunica washings. Of these, 65615 was killed on the fifth day (fourth of fever). The spleen was 2.5 times enlarged and studded with many, rather large foci. Though the appearance was *not* characteristic of tularaemia, the possibility that this infection was involved was entertained for the first time; transfers, however, were valueless. The other (65614) died the ninth day after a course of high fever;[1] the spleen was much enlarged (×4.0) and showed exudate and focal necrosis.

The fifth-transfer guinea pigs received spleen tissue of this animal, 65740 subcutaneously and 65741 intraperitoneally. The former, 65740, died in 5 days; the spleen was twice enlarged, and there were numerous necrotic foci. There was induration at the site of inoculation, and an injection and slight enlargement of the inguinal glands. This was the first gross pathology which was typical of tularaemia, and the transfer technique was changed accordingly. Guinea pig 65984 received spleen tissue subcutaneously and 65983 was dermally inoculated with the same. The other fifth-transfer guinea pig died on the third day and also showed characteristic tularaemia lesions, but there was also a marked peritonitis.

Spleen transfer dermally to a guinea pig was fatal in 5 days and this line was discontinued. The picture was typical of tularaemia. The spleen and liver were studded with necrotic foci, and caseation of the inguinal lymph nodes was present for the first time.

Sixth-passage guinea pigs 65983 and 65984 (from 65740) both died, also on the fifth day. Their gross lesions were again typical. The heart blood of the former showed only a contaminating organism when cultured on *tularense* medium, but that of the latter gave typical growth, except that the individual colonies all showed dark centers which were quite pronounced under low power magnification. A suspension of this culture was agglutinated by a known anti-*tularense* serum.

The above culture was used 4 days later to inoculate guinea pig 66179, which died typically in 5 days. A culture isolated from the heart blood was characteristic of *Bact. tularense*, both culturally and serologically. Several additional transfer passages resulted in the death of all test animals, each of which showed gross lesions typical of acute tularaemia.

The conditions incident to the isolation of this strain of *Bact. tularense* are of interest for two reasons, viz, (1) its extreme initial mildness as shown by the failure of the original and one of the first-passage guinea pigs (the other was killed afebrile for passage material) to show any evidence of illness 41 and 34 days, respectively, during which they were under observation, and (2) its rapid acquisition of increasing virulence by guinea pig passage with progressive change in observed lesions. No other instance of similar increase in virulence of *Bact. tularense* during experimental or routine passage has been encountered at this laboratory in the course of several years' experience.

In view of the number of passages involved before the gross lesions became definitely suggestive of tularaemia, it is quite probable that the presence of *Bact. tularense* would never have been determined but for the hope that continued passages would build up the virulence of a suspected low-grade strain of spotted fever virus.

EXPERIENCE WITH CHOLERA BACTERIOPHAGE IN INDIA

The following statements regarding the experience with the use of cholera bacteriophage in India are taken from the Annual Report of the Director of the Eastern Bureau of the Health Organization of the League of Nations at Singapore, for 1934:

Madras.[1]—Experiments to determine the value of bacteriophage as a prophylactic and curative agent against cholera were carried out in certain districts of Madras.

The conclusions reached were that—

(1) The prophylactic administration of bacteriophage did not reduce the attack rate;

(2) The prophylactic administration did appear to lessen the mortality rate; and

(3) Bacteriophage was not more useful than prodiarrhea mixture in the treatment of cholera.

Assam.—Morrison, Rice, and Pal Choudbury [2] have submitted to a statistical examination the results obtained over a period of time by using bacteriophage for the prophylaxis and treatment of cholera. They conclude that "the results establish a sufficient probability in favor of a significant effect of the administration of bacteriophage to form a basis of practical policy in the treatment and prevention of cholera in villages."

Both in Madras and Assam it appeared that bacteriophage reduced the infecting property of vibrios, from which it would seem that its use should be helpful in reducing the carrier rate.

The epidemic in Cachar [3] in 1933 afforded further opportunity to try the curative effect of bacteriophage, and the statement is made that "as far as figures from reliable data can show, there is no doubt that bacteriophage is an efficacious treatment for cholera."

In regard to prevention, the distribution of cholera-dysentery bacteriophage to villages for the treatment of all diarrheas, dysentery, and suspected cholera has been continued in Nowgong and Habiganj. In the former area there has been no epidemic outbreak for 4½ years, or in the latter for 3 successive cholera seasons. Habiganj also was the only part of the delta of the Barak River which missed epidemic prevalence during the outbreak which occurred during October and December 1933.

Linton [4] and others have continued their studies on the antigenic structure of *Vibrio cholerae*. They classify cholera and choleralike vibrios on the basis of the protein and carbohydrate analysis into six groups. The majority of the strains found in clinical cholera are

[1] Annual Report of the Department of Public Health, Madras, 1933.
[2] Indian Journal of Medical Research, vol. 21, no. 4, p. 789.
[3] King Edward VII Memorial Pasteur Institute, Shillong, 17th Annual Report.
[4] Indian Journal of Medical Research, vol. 21, no. 4, p. 759.

found in group I, while group III comprises the nonagglutinating water vibrios. The El Tor strains analyzed fall into a fourth group, being related to the majority of vibrios found in clinical cholera through the possession of an identical carbohydrate, and to the water vibrios through the protein. This group contains other aberrant strains.

DEATHS DURING WEEK ENDED JUNE 22, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended June 22, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,831	7,363
Deaths per 1,000 population, annual basis	10 9	10.3
Deaths under 1 year of age	559	521
Deaths under 1 year of age per 1,000 estimated live births	51	50
Deaths per 1,000 population, annual basis, first 25 weeks of year	12.3	12.1
Data from industrial insurance companies:		
Policies in force	67,863,479	67,776,458
Number of death claims	12,207	12,348
Death claims per 1,000 policies in force, annual rate	9.4	9 5
Death claims per 1,000 policies, first 25 weeks of year, annual rate	10.5	10 7

PREVALENCE OF DISEASE

—

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 29, 1935, and June 30, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 29, 1935, and June 30, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
New England States:								
Maine		1	1		183	15	0	0
New Hampshire		0			2	113	0	0
Vermont	1	3			35	24	0	0
Massachusetts	10	10			318	596	0	2
Rhode Island	1	0			222	20	0	0
Connecticut	19	3			301	105	0	1
Middle Atlantic States:								
New York	39	16		[1] 3	2,063	505	15	4
New Jersey	15	12	3	6	1,020	366	1	1
Pennsylvania	31	35			988	1,015	11	1
East North Central States:								
Ohio	30	15	22	14	1,278	971	8	0
Indiana	11	7	9	12	54	140	1	0
Illinois	44	37	11	14	747	1,131	11	7
Michigan	6	7	1		1,423	214	3	2
Wisconsin	3	9	30	11	1,178	1,320	2	3
West North Central States:								
Minnesota	1	13	1		63	52	1	0
Iowa	4	8			41	94	1	1
Missouri	16	31	35	7	104	87	2	4
North Dakota	1	1	11		11	53	1	0
South Dakota		1			11	47	0	0
Nebraska		2			63	21	0	0
Kansas	5	25	9	1	189	135	0	0
South Atlantic States:								
Delaware	1				9	26	0	0
Maryland [2, 3]	4	3	2	1	61	228		0
District of Columbia [2]	9	4	1	1	9	18	4	1
Virginia [2]	6	10			150	500	4	0
West Virginia	11	11	14		105	100	2	0
North Carolina [2, 4]	9	4		5	31	332	4	0
South Carolina	3	5	59	70	16	66	1	0
Georgia [4]	11	5				26	0	0
Florida [4]	9	2		2	8	82	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 29, 1935, and June 30, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
East South Central States:								
Kentucky	4	3	2	1	25	211	5	0
Tennessee	9	2	8		14	94	2	1
Alabama [4]	13	17	18	10	49	127	1	0
Mississippi	9	8					1	0
West South Central States:								
Arkansas	4		6	2	8	8	0	1
Louisiana	9	15	5	3	5	46	2	1
Oklahoma [5]	9	1	19	21	8	21	0	0
Texas [4]	26	49	24	33	50	147	0	0
Mountain States:								
Montana [3]	4	2	2	2	85	4	0	1
Idaho			1		4	3	1	0
Wyoming [3]		1			11	157	0	2
Colorado	9	11			106	334	0	0
New Mexico				2	3	24	0	0
Arizona				2		11	1	0
Utah [3]				4	6	3	1	0
Pacific States:								
Washington [3]					239	124	2	3
Oregon		0	16	18	84	16	1	0
California	34	31	26	17	665	515	5	0
Total	430	420	336	262	12,045	10,247	94	36
First 26 weeks of year	15,531	17,791	102,317	46,600	668,253	644,786	3,630	1,378

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
New England States:								
Maine	0	0	10	17	0	0	5	1
New Hampshire	1	0	3	5	0	0	0	0
Vermont	0	0	4	6	0	0	0	0
Massachusetts	3	1	162	119	0	0	0	0
Rhode Island	0	0	10	6	0	0	2	0
Connecticut	1	1	50	12	0	0	1	0
Middle Atlantic States:								
New York	8	3	418	294	0	0	11	11
New Jersey	3	3	75	61	0	0	0	3
Pennsylvania	3	0	241	253	0	0	10	26
East North Central States:								
Ohio	1	1	204	282	0	0	16	19
Indiana	0	0	41	41	2	1	5	5
Illinois	2	5	450	209	0	1	22	30
Michigan	1	0	136	196	0	0	6	4
Wisconsin	1	1	230	258	6	6	0	3
West North Central States:								
Minnesota	0	1	98	44	3	0	30	4
Iowa	0	0	31	24	15	1	0	2
Missouri	0	0	14	25	0	4	16	23
North Dakota	0	0	19	4	0	0	3	0
South Dakota	0	0	3	1	14	0	0	1
Nebraska	0	0	8	10	23	1	2	5
Kansas	0	2	23	15	19	0	7	6
South Atlantic States:								
Delaware	0	0	3	2	0	0	1	1
Maryland [2] [3]	0	1	31	22	0	0	4	10
District of Columbia [3]	0	0	7	5	0	0	3	0
Virginia [3]	24	1	15	10	0	0	18	23
West Virginia	0	1	36	28	0	0	3	12
North Carolina [3] [4]	63	0	14	16	0	1	43	14
South Carolina	2	0	2	1	0	0	47	12
Georgia [4]	1	0	6	4	0	0	34	38
Florida [4]	0	1	5	1	0	0	9	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 29, 1935, and June 30, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
East South Central States:								
Kentucky	1	0	22	11	1	0	18	21
Tennessee	1	1	12	4	0	0	27	31
Alabama [4]	5	0	11	4	1	0	30	17
Mississippi	0	2	10	4	0	0	16	14
West South Central States:								
Arkansas	0	0	3		0	0	17	14
Louisiana	4	0	6	9	6	1	23	30
Oklahoma [5]	0	0	8	7	0	1	9	11
Texas [4]	0	6	21	28	2	12	35	58
Mountain States:								
Montana [2]	1	1	10	7	2	0	2	1
Idaho	0	2	2	1	0	0	1	0
Wyoming [2]	0	0	7	1	10	1	0	0
Colorado	0	0	44	13	1	0	2	1
New Mexico	0	0	3	6	0	0	6	7
Arizona	0	2	7	9	0	0	3	3
Utah [3]	0	0	50	6	0	0	0	1
Pacific States:								
Washington [2]	0	1	30	19	35	6	3	1
Oregon	1	4	20	15	10	1	1	8
California	33	297	128	113	2	0	8	18
Total	160	338	2,743	2,228	152	37	499	495
First 26 weeks of year	1,025	2,099	171,478	140,447	4,852	3,519	4,583	5,205

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended June 29, 1935, 29 cases as follows: Maryland, 1; District of Columbia, 1; Virginia, 2; North Carolina, 1; Montana, 12; Wyoming, 11; Washington, 1.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended June 29, 1935, 25 cases as follows: North Carolina, 1; Georgia, 7; Florida, 1; Alabama, 10; Texas, 6.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May 1935										
Mississippi	1	19	1,293	6,359	500	494	2	17	2	22
Montana	5	10	235		1,861		0	41	34	6
New York	94	143		3	13,127		14	4,748	0	25
South Dakota	2	6	17		168		0	82	43	0
Virginia	43	55	260	7	2,293	11	4	95	0	22

May 1935

	Cases
Anthrax:	
New York	1
Chicken pox:	
Mississippi	331
Montana	127
New York	3,153
South Dakota	39
Virginia	276
Dengue:	
Mississippi	84
Dysentery:	
Mississippi (amoebic)	90
Mississippi (bacillary)	1,770
New York (amoebic)	6
New York (bacillary)	17
Virginia (bacillary, and diarrhea)	70
Epidemic encephalitis:	
New York	4
Virginia	1
German measles:	
Montana	539
New York	20,713
Hookworm disease:	
Mississippi	277
Impetigo contagiosa:	
Montana	11

	Cases
Mumps:	
Mississippi	940
Montana	147
South Dakota	125
Virginia	385
Ophthalmia neonatorum:	
New York	3
Paratyphoid fever:	
New York	5
Virginia	2
Puerperal septicemia:	
Mississippi	41
Rabies in animals:	
Mississippi	6
New York [1]	7
Rocky Mountain spotted fever:	
Montana	35
Virginia	4
Scabies:	
Montana	3
South Dakota	1
Septic sore throat:	
Montana	16
New York	95
South Dakota	1
Virginia	9

	Cases
Tetanus:	
New York	3
Trachoma:	
Mississippi	3
Montana	4
Trichinosis:	
New York	60
South Dakota	1
Tularaemia:	
Montana	3
Virginia	2
Typhus fever:	
New York	2
Undulant fever:	
Montana	1
New York	28
Virginia	2
Vincent's infection:	
New York [1]	79
Whooping cough:	
Mississippi	1,175
Montana	300
New York	2,596
South Dakota	28
Virginia	356

[1] Exclusive of New York City.

PLAGUE-INFECTED GROUND SQUIRREL IN LASSEN COUNTY, CALIF.

The director of public health of California has reported, under date of June 24, 1935, one plague-infected ground squirrel shot on a ranch in Lassen County, Calif., 4 miles east and 2 miles south of Adin.

WEEKLY REPORTS FROM CITIES

City reports for week ended June 22, 1935

This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	1	0	3	0	1	0	0	0	3	17
New Hampshire:											
Concord	0	------	0	1	0	3	0	0	0	0	11
Nashua	0	------	------	0	------	0	0	------	0	0	------
Vermont:											
Burlington	1	------	0	0	0	2	0	0	1	0	11
Rutland	0	------	0	------	1	0	0	0	0	1	6
Massachusetts:											
Boston	3	------	0	41	23	37	0	14	0	10	206
Fall River	1	------	0	3	0	2	0	1	0	2	27
Springfield	0	------	0	28	1	14	0	1	0	1	30
Worcester	0	------	0	0	6	17	0	0	0	0	38
Rhode Island:											
Pawtucket	0	------	0	7	0	1	0	0	0	0	15
Providence	1	1	0	308	2	10	0	4	0	2	64
Connecticut:											
Bridgeport	0	------	0	17	0	3	0	0	0	1	34
Hartford	0	------	0	5	3	2	0	0	0	16	51
New Haven	0	------	0	30	1	0	0	0	0	1	43
New York:											
Buffalo	0	------	0	17	14	45	0	0	0	11	135
New York	20	11	3	1,030	88	214	0	85	7	129	1,424
Rochester	0	------	0	29	3	12	0	2	0	9	64
Syracuse	0	------	0	443	5	22	0	0	0	10	44
New Jersey:											
Camden	2		0	0	1	2	0	0	1	1	25
Newark	0	1	0	200	6	6	0	7	0	44	98
Trenton	0	------	0	0	2	6	0	3	0	0	36

City reports for week ended June 22, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Pennsylvania:											
Philadelphia	5		2	70	25	59	0	23	3	60	435
Pittsburgh	4	1	0	114	14	41	0	8	1	18	154
Reading	1		0	56	1	3	0	1	0	2	21
Scranton	0			19		10	0		0	2	
Ohio:											
Cincinnati	0		1	5	11	10	0	10	0	0	145
Cleveland	9	8	1	274	13	14	0	17	0	30	166
Columbus	0		0	54	4	9	0	6	0	3	73
Toledo	0		0	67	6	3	0	3	0	9	80
Indiana:											
Anderson	0		0	3	0	1	0	0	0	1	11
Fort Wayne	5		0	0	3	1	0	1	0	0	29
Indianapolis	1		1	11	11	7	0	2	0	5	100
South Bend	0		0	0	0	4	0	0	0	0	15
Terre Haute	0		0	0	0	1	0	0	0	0	16
Illinois:											
Alton	0			0		0	0		0	0	7
Chicago	18	5	2	449	25	365	0	33	3	76	633
Elgin	0		0	0	0	5	0	0	0	4	5
Moline	0		0	0	0	0	0	0	0	0	8
Springfield	0		1	4	2	6	0	0	0	12	25
Michigan:											
Detroit	1		2	263	18	39	0	24	2	115	246
Flint	1		0	1	3	1	0	0	1	4	25
Grand Rapids	0		0	78	3	11	0	1	0	12	46
Wisconsin:											
Kenosha	0		0	9	0	12	0	0	0	2	5
Milwaukee	1	1	1	540	7	73	0	2	0	47	95
Racine	0		0	104	0	21	0	1	1	11	15
Superior	0		0	14	0	0	0	0	0	0	6
Minnesota:											
Duluth	0		0	10	1	1	0	2	0	2	27
Minneapolis	1		0	18	1	27	0	1	4	3	84
St. Paul	1		0	18	6	18	0	2	1	2	54
Iowa:											
Cedar Rapids	0			3		0	1		0	1	
Davenport	0			0		0	0		0	0	
Des Moines	3			0		2	0		0	1	30
Sioux City	0			1		1	1		0	5	
Waterloo	1			0		2	0		0	1	
Missouri:											
Kansas City	0		0	9	7	5	0	9	0	0	93
St. Joseph	0		0	0	3	0	0	2	0	0	45
St. Louis	8		0	11	7	6	0	5	0	7	163
North Dakota:											
Fargo	0		4	3	0	2	0	0	0	4	11
Grand Forks	0			1		1	0		0	0	
Minot	0			1		0	0		0	0	8
South Dakota:											
Aberdeen	0			2		1	0		0	0	
Nebraska:											
Omaha	0		0	11	2	7	0	1	0	0	46
Kansas:											
Lawrence	0		0	9		1	0		0	0	
Topeka	0		0	30	1	0	0	0	0	22	12
Wichita	0		0	3	0	1	0	1	0	4	23
Delaware:											
Wilmington	1		0	1	3	3	0	1	0	0	22
Maryland:											
Baltimore	0		4	12	18	28	0	13	1	22	219
Cumberland	0		0	0	0	1	0	0	0	0	1
Frederick	0		0	1	0	0	0	0	0	0	2
District of Columbia:											
Washington	6	1	0	12	7	7	0	12	0	3	149
Virginia:											
Lynchburg	1		0	0	0	0	0	1	0	24	11
Norfolk	0		0	3	2	1	0	1	0	0	40
Richmond	0		0	10	1	1	0	6	0	4	48
Roanoke	0		1	2	0	0	0	3	0	0	16
West Virginia:											
Charleston	1		0	2	0	0	0	1	0	1	7
Wheeling	0		0	18	3	1	0	0	0	2	15

City reports for week ended June 22, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths all causes
		Cases	Deaths								
North Carolina											
Gastonia	0			0		0	0		0	0	3
Raleigh	0		0	0	1	0	0	0	0	0	9
Wilmington	0		0	0	0	0	0	0	0	8	14
Winston Salem	0		0	0	1	0	0	0	0	4	8
South Carolina											
Charleston	0		0	0	2	0	0	1	0	0	20
Columbia											
Florence	0			0		0	0		2	2	18
Greenville	0		0	0	2	0	0	0	0	1	13
Georgia											
Atlanta	5	4	0	0	7	1	0	2	0	17	81
Brunswick	0		0	0	0	0	0	0	0	0	2
Savannah	0		0	2	1	0	0	1	0	2	32
Florida											
Miami	2		0	1	1	0	0	2	0	0	19
Tampa	0		0	1	3	0	0	0	3	0	20
Kentucky											
Ashland	0			21		1	0		0	0	
Covington	1		0	0	3	2	0	0	0	0	16
Lexington			0		2			1			16
Tennessee											
Knoxville	0		0	1	1	0	0	2	0	0	34
Memphis	1		0	0	8	3	0	2	0	11	70
Nashville	3		0	0	5	0	0	1	0	15	68
Alabama											
Birmingham	1		0	7	1	0	0	3	0	7	59
Mobile	0	1	0	2	3	0	0	0	2	0	24
Montgomery	0			0		1	0		0	0	
Arkansas											
Fort Smith	0			0		0	0		2	0	
Little Rock	1		0	0	10	0	0	3	0	0	15
Louisiana											
New Orleans	10		1	1	0	8	0	15	2	0	141
Shreveport	0		0	0	2	0	0	4	0	0	48
Texas											
Dallas	1		0	0	3	3	1	3	0	5	66
Fort Worth	0		0	0	0	1	0	0	1	0	30
Galveston	0		0	0	4	0	0	0	0	0	20
Houston	3		0	2	8	1	0	3	1	0	86
San Antonio	2		0	0	2	1	0	3	0	0	40
Montana											
Billings	0		0	4	0	0	0	1	0	1	5
Great Falls	0		0	4	0	1	0	0	0	4	5
Helena	0		0	1	0	0	0	0	0	2	5
Missoula	0		0	0	2	0	0	0	0	0	9
Idaho											
Boise	0		0	1	1	0	0	0	0	0	9
Colorado											
Colorado Springs	0		0	0	2	9	0	3	0	0	12
Denver	5		0	82	6	19	0	7	0	1	65
Pueblo	0		0	7	0	4	0	0	1	2	8
New Mexico											
Albuquerque	0		0	2	0	0	0	6	0	0	9
Utah											
Salt Lake City	0		0	3	1	34	0	2	1	53	21
Nevada											
Reno	0		0	0	1	0	0	0	0	0	1
Washington											
Seattle	0		0	187	5	9	0	3	1	4	78
Spokane	0	2	2	8	3	4	0	0	0	2	32
Tacoma	0		0	1	2	1	1	0	0	0	23
Oregon											
Portland	1	1	0	26	0	27	0	1	1	0	62
Salem	0			1		0	0		0	0	
California											
Los Angeles	15	12		82	8	32	2	19	0	17	335
Sacramento	1		0	64	2	20	0	1	1	1	39
San Francisco	0		0	123	7	11	0	12	0	26	175

City reports for week ended June 22, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
New York			
New York	22	11	9
Rochester	1	0	1
Pennsylvania			
Philadelphia	2	0	0
Pittsburgh	1	0	1
Ohio			
Cincinnati	2	2	0
Cleveland	1	1	0
Columbus	1	1	0
Illinois			
Chicago	7	4	0
Michigan			
Detroit	3	0	1
Missouri			
Kansas City	2	0	0
St Joseph	1	1	0
St Louis	3	0	0
Maryland			
Baltimore	6	3	0
District of Columbia			
Washington	11	1	0
Virginia			
Lynchburg	1	1	1
Norfolk	1	3	0
North Carolina			
Raleigh	0	0	2
Georgia			
Atlanta	1	0	0
Tennessee			
Knoxville	1	0	1
Memphis	1	1	0
Alabama			
Birmingham	1	1	0
Arkansas			
Fort Smith	1	0	0
Louisiana			
New Orleans	0	0	1
California			
Los Angeles	3	0	26

Epidemic encephalitis.—Cases New York, 3, Detroit, 1, St Paul, 2, Sacramento, 1

Pellagra.—Cases Providence, 1, Norfolk, 2, Charleston, S C, 1, Savannah, 4, Miami, 1, Birmingham, 1, Montgomery, 2

Rabies in man.—Chicago, 1 death

Typhus fever.—Cases Savannah, 1 Deaths Savannah, 1, Fort Worth, 1

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended June 15, 1935.—During the 2 weeks ended June 15, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	1		1			3
Chicken pox		1	3	340	525	72	39	36	166	1,182
Diphtheria		7		32	12	7	2		1	61
Dysentery				6						6
Erysipelas				8	6	2		4	3	23
Influenza		10	14		7	10			26	67
Lethargic encephalitis					1					1
Measles		62	17	1,371	6,138	144	108	516	297	8,653
Mumps		8			471	246	36	16	43	820
Paratyphoid fever					2				1	3
Pneumonia		2			26		1		14	43
Poliomyelitis				3	2		1	2	1	9
Scarlet fever		34	5	261	378	27	9	14	69	797
Smallpox									1	1
Trachoma				1			13		1	15
Tuberculosis	7	49	28	155	95	37	34	1	25	431
Typhoid fever				49	12	1		3	4	69
Undulant fever		1			5		4			10
Whooping cough		3	4	121	329	64	62	57	122	762

CZECHOSLOVAKIA

Communicable diseases—April 1935.—During the month of April 1935 certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	2		Malaria	55	
Cerebrospinal meningitis	26	8	Paratyphoid fever	7	
Chicken pox	101		Poliomyelitis	1	
Diphtheria	1,791	131	Puerperal fever	38	11
Dysentery	47	2	Scarlet fever	1,483	19
Influenza	13,758	134	Trachoma	106	
Lethargic encephalitis	2	2	Typhoid fever	233	29

JAMAICA

Communicable diseases—4 weeks ended June 15, 1935.—During the 4 weeks ended June 15, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	18	41	Puerperal fever		7
Dysentery	4	5	Scarlet fever		1
Erysipelas		3	Tuberculosis	36	85
Leprosy	2	3	Typhoid fever	19	78

SALVADOR

Vital statistics—1934.—The following table shows the vital statistics for Salvador for 1934:

Population Dec. 31, 1934	1, 574, 495
Total births	63, 777
Birth rate per 1,000 population	40. 8
Total deaths	38, 766
Death rate per 1,000 population	26. 0
Total number of marriages	5, 659
Infant mortality per 1,000 live births	135. 0

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for June 28, 1935, pp. 875–890. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued July 26, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Brazil—Bahia State—Feira Santanna.—A report dated July 2, 1935, states that from the beginning of the year 16 deaths from plague have occurred at Feira Santanna, Bahia State, Brazil. Feira Santanna is about 80 miles from the city of Bahia and is connected by railroad with Cachoeira.

Ecuador—Guayaquil.—On April 10, 1935, 1 case of plague with 1 death was reported at Guayaquil, Ecuador.

Indo-China—Saigon-Cholon.—During the week ended June 22, 1935, 2 cases of plague were reported at Saigon-Cholon, Indo-China.

United States—California.—Report of plague-infected ground squirrels in California appears on page 917 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Japan—Nagoya.—During the week ended June 8, 1935, 1 case of smallpox was reported at Nagoya, Japan.

Typhus Fever

China—Canton.—During the week ended May 18, 1935, 1 case of typhus fever was reported at Canton, China.

Yellow Fever

Brazil.—During the week ended June 22, 1935, yellow fever was reported in Brazil, as follows: Goyaz State, 2 cases; Mato Grosso State, 2 cases; Minas Geraes State, 6 cases, 6 deaths; Sao Paulo State, 1 case, 1 death.

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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BUBONIC PLAGUE ON THE WEST COAST OF SOUTH AMERICA IN 1934

By John D. Long, *Medical Director, United States Public Health Service, Traveling Representative, Pan American Sanitary Bureau*

Bubonic plague first made itself manifest on the west coast of South America in 1903. The first cases were discovered in the ports of Pisco and Callao, Peru, in April of that year. The disease appeared in ports of Chile at almost the same time, but it was not discovered in Ecuador until plague-infected rats, soon followed by human cases, were found in the port of Guayaquil in 1908. A total of 36,251 cases of plague has been reported from these 3 countries in the 31 years since the disease first made its appearance in Peru and Chile.

CHILE

From the discovery of the first case of plague in Chile in 1903 until the date of the last case in January 1930, a total of 5,200 human cases has occurred. All of the principal Chilean ports have had the disease, including the larger ports of Valparaiso, Antofagasta, and Iquique. The last human case occurred in the port of Antofagasta in January 1930, and the last plague-infected rats discovered were trapped in the city of Antofagasta in August 1932.

With the exception of a few cases that occurred in Santiago and a few other towns near the coast, at the time that infection existed in Valparaiso, the disease was confined to the seaports.

ECUADOR

Since the discovery of the first cases of plague in Guayaquil in 1908, a total of 10,469 cases has occurred in the Republic of Ecuador. From Guayaquil the disease spread, via the Guayaquil and Quito Railroad, to the interior towns and villages along and in the vicinity of the right-of-way of the line, and to the Indian villages and towns in the interandine region.

Through the coastwise maritime traffic the disease reached the ports on the Pacific coast, as well as certain towns and villages adjacent to them, and, via the river traffic, a number of localities on the Babahoyo, Daule, and Guayas Rivers. The last cases of the disease in the coast region occurred in the city of Guayaquil on

March 26, 1930. The ports on the Pacific coast and adjacent towns and villages, as well as the places on the Guayaquil and Quito Railroad, coast section, and the localities on the rivers had been freed from the disease some time previously. It persisted in certain Indian villages of the interandine region until the occurrence of the last cases [1] in the village of Sevilla near the railroad town of Alausi in June 1934. Cases were reported as suspected plague [2] from the Province of Loja [3] in December 1934.

PERU

Since the first appearance of plague in Peru in April 1903, a total of 20,582 cases has occurred in approximately 630 different localities.

Intensification of antiplague measures, in cooperation with the Pan American Sanitary Bureau, was begun in October 1930, and since that date cases of bubonic plague have occurred, by month, as follows:

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Number of foci
1930	56	29	16	36	26	26	11	22	13	28	37	78	378	------
1931	36	28	9	16	2	11	3	22	2	27	28	16	200	------
1932	11	2	1	2	5	2	1	2	2	6	10	13	57	33
1933	5	19	7	1	3	5	6	7	5	18	19	12	107	58
1934	7	6	10	7	0	1	0	2	3	3	2	5	46	31

The cooperative campaign is still being actively carried on, and it is hoped that there will be even further reductions in the number of cases and foci in 1935.

EXPERIENCES AND OBSERVATIONS IN 1934

DISEASES OTHER THAN PLAGUE FOUND IN RATS

About 12 guinea pigs that had been inoculated from rats trapped in Lima and Callao have died from icterohemorrhagic jaundice, or Weil's disease. One human case of this disease, not fatal, occurred in Callao in the person of an employee of the Frigorifico Nacional, the abattoir and refrigerating plant that supplies Lima and Callao and the neighboring towns with meat and meat products.

[1] Four cases and 3 deaths from plague occurred in the Province of Chimborazo during February 1935. None has been reported since that date.

[2] Under date of Apr. 3, 1935, Dr. C. Velasco, Director General of Public Health of the Republic of Ecuador, reported: "In the Province of Loja, plague has occurred from time to time since September 1934. In February 1935 there were 18 cases and 7 deaths in this Province. We were unable to state the number of cases prior to February for the reason that the infected localities are without roads, and the plague commission sent to make the investigation was delayed many days in their journey. However, my predecessor reported a case of plague in Amaluza, Province of Loja. * * * Three cases and 1 death occurred in Amaluza (sector) in March 1935."

[3] Dr. Ramos Díaz, named traveling representative of the Pan American Sanitary Bureau, upon recommendation of the author, visited Ecuador in February 1935, and in cooperation with Ecuadorian authorities confirmed the existence of plague in the Province of Loja.

(The information given in the above footnotes was received after this report had been written.—Ed.)

In the beginning of the cooperative antiplague work, a very large proportion of the rats trapped were found to have abscesses in various organs, especially in the liver and lungs, and many of them had intestinal worms and other parasites, cysts in the liver, skin diseases of varying types, and healed scars and adhesions in the chest and abdomen. It is now relatively rare to encounter any of these conditions. Since the rat population in Lima, Callao, and neighboring towns has been reduced through the antiplague measures by about 60 to 70 percent, according to the trapping statistics and indices, it is thought that the diminution in these diseases and infections, as well as the reduction in plague incidence, is due to less opportunity for contact. The rats are no longer distributed more or less uniformly throughout the cities as they were formerly. They now seem to be distributed in colonies and groups of varying sizes in the vicinity of markets, the garbage dumps, and in and near certain factories, such as food manufacturing establishments, certain warehouses, lumber yards, truck gardens, and similar localities. The trappers have learned by experience that it is useless to attempt to trap rats in some localities, as their efforts are practically certain to be without result. Some of these relatively rat-free areas are quite extensive when measured on the maps of the cities where trapping is being done.

Several rats with lesions quite suggestive of plague were found to have unknown bacterial infections that were not plague. One was believed, from the cultural reactions, to have been infected with pseudotuberculosis. No trichinosis has been found.

LATENT OR INAPPARENT PLAGUE

It is rare to find a rat at autopsy with visible lesions of plague. Most of the plague infection among rats is discovered through the making of mass inoculations. To make mass inoculations, small pieces of spleen and liver and, at times, of glands are taken from each rat that comes to autopsy and then ground up in a mortar with a small amount of normal salt solution. One or more guinea pigs are then inoculated with a small portion of this emulsion or suspension by rubbing the smeared pestle over a scarified area on the belly of the animal. In the case of rats showing suspicious lesions or rats that have come from suspected sections, emulsions from individual or small groups of rats are used to inoculate separate guinea pigs.

Much thought and study have been given to this matter of latent plague, and, to help elucidate the problem, the following experiments were made: Over a period of some months, Laboratory Technician Hector Colichón Arbulu inoculated a series of healthy rats with plague-infected material by the scarification method. A certain number of the rats, although quite sick following the inoculations, did not die. A rat that had recovered was asphyxiated with hydrocyanic acid gas

30 days after recovery. No visible lesions of plague were discoverable at autopsy except the scar left at the site of inoculation. Stained microscopic slides made from the internal organs and glands of the rat were negative for plague. An emulsion made from the spleen, liver, and lymphatic glands of the animal, when inoculated into a guinea pig, killed the pig with typical bubonic plague.

Identical results were obtained from other rats, in one case in 60 days after apparent recovery and in another in 90 days. Ninety days is the longest latent period so far found.

Laboratory Technician Arquímedes Ramos Diaz conducted over a period of some months a series of feeding experiments described as follows: Healthy rats that had been under observation long enough to demonstrate that they were not plague-infected were fed the livers and spleens of guinea pigs that had died of proved plague.

One or two of the rats did not die or become infected. In the rats that became infected and died, the following observations were made: In one rat, only the cervical glands were involved; another had lesions only in the glands of the mesentery; and another had ulcers in the interior of the intestine that had not perforated the peritoneal coat of the organ. Virulent plague bacilli were recovered from the involved tissues in each case and also from the spleen and liver, thus showing that the usual terminal bacteriemia had been produced.

Following the above-described observations, more careful search was made for involved cervical and mesenteric glands and for intestinal involvement. As a result, a trapped rat was found that had a few small, whitish, elliptical intestinal plaques. These plaques were not ulcerated in the interior of the intestine and had not perforated the peritoneal layer. There were no signs of inflammation. The plaques were removed, and microscopic stained smears were made from them. A number of Gram-positive and negative micro-organisms were seen and also a few Gram-negative bipolar staining bacilli. A guinea pig was inoculated in the eyeball, a method that experience has shown to be useful where micro-organisms are scarce and of low virulence, and died in a few days. There were no typical lesions at autopsy; but since some suspicious-looking bacilli were seen, a second guinea pig was inoculated with an emulsion made from the eye, the spleen, and liver of the first pig. This pig died in 9 days of typical plague.

The above-mentioned rat had been trapped in sector 8, city of Lima, near the Central Market, a very resistant plague focus, and it is inferred that infection took place through the eating of the body of a rat that had died from plague in that locality.

It is thought that the above-mentioned experience also probably explains the recent sudden appearance of plague in the vicinity of the garbage dump that has been formed near the city garbage

crematory, where, owing to the limited capacity of the furnaces, a large amount of garbage and waste matter is dumped each day. It is quite a common practice for householders to throw dead rats into the garbage cans and even, in not infrequent instances, to remove rats from the traps of the antiplague service and throw them into the garbage cans to avoid, what they consider, the stigma of having rats found upon their premises. This practice is especially common among certain merchants who have food warehouses in the vicinity of the Central Market.

Adjacent to, and actually on, the garbage dump, there existed a number of pigstys that held some 300 hogs. These hogs were fed with garbage and other waste matter, such as swill from houses and hotels. Rats were numerous in and around the pigpens. Later the pigpens were ordered destroyed and the hogs were removed to another site farther from the city. As this removed the principal source of food supply, the numerous rats that were there at once invaded the houses nearby, with the result that a number of plague-infected rats were trapped and several human cases of plague occurred.

The rat migrations produced must have been extensive, as infected rats were trapped in houses and other places at quite some distance from the garbage dump. Constant trapping in the same sectors for some months previously had failed to reveal any rat infection, and such infection was not found until about 1 month after the pigpens had been destroyed and the hogs removed to another location.

About six weeks after the appearance of the first rat infection in Lima, an infected rat and a human case were found in Callao, a short distance from the railroad station. The railroad line passes close to the garbage crematory and the dump; and the Montserrate freight station, where much freight is handled and transshipped, is just across the right-of-way from the garbage crematory. It is thought that an infected rat was carried to Callao, probably in cargo.

LICE AND FLEAS AS RESERVOIRS OF PLAGUE

In June 1934, a young girl died of plague in the town of Villa Eten. A puncture of the involved axillary glands was made just a few hours before death occurred. At the same time, the laboratory technician picked nine lice (*Pediculus capitis*) from the head of the patient, placed them just as he found them in a clean glass bottle, and sent them to the laboratory in Lima by airplane. Upon arrival, the lice were triturated in a mortar with normal salt solution and inoculated into a guinea pig. The guinea pig died with typical bubonic plague. The guinea pig that had been inoculated with the material aspirated from the involved axillary glands also died of plague.

A number of head lice were then collected from healthy persons and placed upon plague-infected guinea pigs. These became infected with plague, as was proved by inoculation of a few of them into another guinea pig. A healthy guinea pig was then placed in a jar with the remaining infected lice but it did not develop plague. A repetition of the experiment gave exactly the same results.

These experiments would seem to indicate that, although head lice may become infected with plague, they are incapable of transmitting the disease. However, the phenomenon is not without epidemiological importance, because it is a well-known fact that the Indians of the high Andes are accustomed to kill the lice and fleas they catch on their own persons, or on the persons of others, and crush them with their teeth. The pharyngeal and tonsillar forms of plague (*angina pestosa*) have been relatively common among the Indians of the Andes, both in Peru and Ecuador.

Similar experiments carried out with the guinea-pig flea (*Rhopalopsyllus cavicola*) gave identical results. The fleas became infected but were unable to transmit the disease to other guinea pigs. The guinea-pig flea is frequently found in the clothing and bedding of the Indians of the high Andes.

Identical experiments were carried out with the so-called human flea (*Pulex irritans*). These fleas became infected and, in turn, infected healthy guinea pigs.

Of over a thousand fleas collected from clothing, bedding, ponchos, saddle bags, and saddle blankets of mule drivers and other persons, between 80 and 90 percent were *P. irritans*. The remaining fleas consisted of *R. cavicola, X. cheopis* (a very few), and dog fleas (*Ct. canis*).

THE HUANCABAMBA AND ANDABAMBA OUTBREAKS OF PLAGUE

Huancabamba is a town situated in the high Andes at an elevation of about 3,000 meters above sea level. It is the capital of the province of the same name. Andabamba is a village in the Province of Cajamarca situated in the Andes at an elevation of about 2,500 meters. Neither Huancabamba nor Andabamba can be reached except by mule. There are no roads. Owing to the fact that all merchandise has to be carried on muleback, no rats, as yet, have reached either town. That rats do not exist in the towns is attested by the inhabitants and by the representatives of the Antiplague Service who have persistently carried on trapping operations without result.

Both Huancabamba and Andabamba are supplied with products such as cloth, salt, general merchandise, etc., from the Department of Lambayeque, principally the cities of Chiclayo and Lambayeque, by means of mule caravans or trains. These mule trains pass through the towns of Tucuma, Muchumi, Illimo, Pacora, and Jayanca, where

the people live who work the rice plantations of the district. Rats are numerous in the towns and in the rice fields, and both human and rodent plague has existed there.

The mule drivers pass their nights at certain posadas, or wayside inns, along the road. Some of the posadas are located in the towns mentioned. The posadas are almost always located on the outskirts of the towns near the rice fields, where the rats are numerous, in order to obtain pasture for the mules. Guinea pigs are quite commonly kept in these posadas and run loose in the interior of the establishments. The mule drivers usually sleep on the floor or on low benches, and the guinea pigs snuggle up against them for warmth during the cool periods of the night, thus affording ample opportunity for mutual interchange of fleas.

In Huancabamba, four cases of plague occurred in 1934. This was the first plague that had occurred in the whole province in over 3 years. The first case occurred in the person of a woman who conducted a posada in a place called Lacchán, and her sickness and death were preceded by an epizootic among the guinea pigs she maintained in the posada. It is believed that infected fleas were carried in the clothing and effects of the mule drivers, accustomed to pass the night in the posada, from the infected towns in the Department of Lambayeque, with the resulting infection of the guinea pigs and, later, of the woman.

Three cases occurred in the Andabamba outbreak, and the circumstances attendant upon them were in every way similar to the Huancabamba incident. Plague had occurred in Andabamba and neighboring towns several years previously, and the history of that outbreak was in every way similar to the outbreak under discussion, with the exception that, on that occasion, the first case was in the person of one of the mule drivers.

The other three cases in the Huancabamba outbreak were due presumably to infected guinea pigs bought in Lacchán and carried to Huancabamba city and to Sapalache, as in both instances the guinea pigs that had been bought and transported died within a few days of their arrival, and the human cases occurred later.

As extensive poisoning operations have been conducted in the Lambayeque rice districts, some 3 tons of poison having been used, and as these operations are still being conducted there, it is felt that Huancabamba and Andabamba will probably be protected against future infections. In fact, aside from the isolation of the sick when the cases occurred, in neither place were other measures taken. As there were no rats in either town, no other measures seemed to be indicated, except the cleaning up of the infected houses.

PLAGUE IN QUILLOAG, ECUADOR

The history of the outbreak in Quilloag is given as it seems to indicate that fleas, under certain circumstances, can act as both reservoirs and carriers of plague infection. The details were furnished by Dr. Carlos A. Mino, at that time the chief of the National Antiplague Service of Ecuador.

Quilloag is an Indian village in the Province of Canar, Ecuador, and, prior to the outbreak under discussion, had never been infected with bubonic plague. There are no rats in Quilloag,[4] as attested to by the inhabitants and the failure to trap them despite persistent efforts.

An Indian, an itinerant vendor who resided in Quilloag, went to the town of Achupallas in the course of his business. Achupallas, despite its high altitude, 4,000 meters or more, and the cold—there are snow and ice there the greater part of the year—was formerly a quite resistant focus of plague. The disease was finally apparently eliminated, however, by an intensive campaign of extermination against guinea pigs and fleas, in the course of which many gallons of insecticide were used and practically the whole population was compelled to boil, sun, and in other ways disinfest their clothing and effects of fleas and other insects.

Upon the arrival at a place called San Antonio de Achupallas, the itinerant vendor noticed an empty hut containing clothing, bedding, and other effects and utensils. The hut was apparently uninhabited. Upon inquiry it was learned that the inhabitants had died a month or so previously of what later was believed to be unreported plague. On his return journey, after selling his merchandise, the Indian took such clothing and other articles from the hut as he desired and loaded them upon his mule. Upon arrival at Quilloag he turned the articles over to the women of his household with instructions to look them over and salvage such things as might be useful. The first cases of plague occurred among these women, and in the village as a whole some 45 cases of plague occurred. Such fleas as could be collected were identified and all proved to be *P. irritans*.

As the temperature at Achupallas is always very low, 10° C. or less, and the humidity is high, it would appear that the fleas contained in the clothing had survived from the time of the occurrence of the deaths some months previously and remained infective until reaching the lower and warmer altitudes of Quilloag, where they became once more active and caused the outbreak of plague.

[4] This statement should probably be taken with caution. A similar statement with regard to the absence of rats in the infected regions in the Province of Loja, made on what was considered good authority, proved to be erroneous upon investigation. (Letter from Dr. Long, to Dr. B. J. Lloyd, of the Pan American Sanitary Bureau, Apr. 8, 1935.—Ed.)

ANTIPLAGUE MEASURES THAT HAVE BEEN USED

Ratproofing has not been done except in very isolated instances, as it is architecturally and economically impossible. In Guayaquil, the sanitary authorities have used ratproofing measures for a number of years.

The trapping of rats has been carried on continuously in all the larger cities and especially in the seaports in all three countries. It has not been carried on, however, as a rat-extermination measure; it has been done for the sole purpose of getting rats for laboratory examination in order to determine plague indices among them.

Systematic fumigation of shipping and maritime vessels has been carried on for obvious reasons. Since 1930 only in one instance were plague-infected rats found on a ship. All rats found after fumigation are examined in the laboratory.

The principal mainstay of the cooperative antiplague campaigns in Ecuador, Peru, and Chile has been systematic and wholesale use of rat poison.

Data are not available at the present moment as to the total amounts of poison used in Ecuador and Chile. However, in the city of Guayaquil,[5] Ecuador, alone between 50 and 75 tons have been used over a period of slightly more than 5 years.

In Peru, from October 1930 to December 31, 1934, 282,600 kilograms (282.6 long tons) of poison have been used. This represents approximately 85,000,000 poisoned baits placed. In 1934 alone over 65,000 kilograms or 19,554,300 poisoned baits were used in the Republic of Peru. It is estimated on the basis of various observations as to the percentage of baits eaten, that between 8,000,000 and 9,000,000 rats have been destroyed in Peru in a little over 4 years. Poison is still being used in Peru at the rate of over 5 tons per month.

SUMMARY

1. The Republic of Chile, in accordance with the standards specified in the Pan American Sanitary Code, can be considered free from bubonic plague.

2. Plague in Peru has been reduced over a 31-year period from an average of about 664 cases per year to 46 cases in the year 1934, a reduction, as compared with the average annual number of cases, of 93 percent.

3. Valuable and highly suggestive epidemiological observations have been made; but, owing to lack of proper laboratory and other facilities, it has not been possible to arrive at definite conclusions or to make categorical statements regarding them.

4. All of us who have been actively engaged in the suppression of bubonic plague over a period of years believe that fleas under favorable

conditions as to temperature and humidity, especially low temperatures and relatively high humidities, can act as reservoirs of plague infection, carry it over long distances and, later, under favorable conditions, transmit the disease. The incidents cited in this article strongly indicate that head lice and guinea pig fleas can also act as reservoirs of plague infection and, under certain special circumstances, serve as the means by which plague infection is produced. Our views relative to the transportation of infected fleas in certain types of cargo were set forth in an article in the Pan American Sanitary Bulletin of November 1934 under the title "Experiences with Fleas as Carriers of Bubonic Plague." [5]

EDITORIAL NOTES.—The following information regarding plague work in Ecuador was furnished by Dr. C. Velasco, Director General of Public Health of the Republic of Ecuador, under date of April 3, 1935:

Coast areas.—Deratization has been effected by poisoning and trapping, about 4,000 traps being used daily. Poisoning is resorted to four times a year, using each time about 30,000 pounds of poison distributed through 2,672,700 packages. The number of rats taken in traps was 10,128, and it is calculated that approximately 235,300 rats were killed by poison. No infection was found in 47,022 rats autopsied. It should be observed that suburbs are included in these reports.

Central zone.—In this zone 49,187 rats were taken. Two tons of poison, consisting of 810,700 packages, have been distributed. It is estimated that approximately 90,000 rats were destroyed. Only those showing suspicious symptoms were autopsied, but no infection was found.

Southern zone.—In this zone 12,068 rats were taken, 150,115 packages of poison were distributed, and it is estimated that 18,000 rats were destroyed by poisoning.

Measures.—All necessary measures have been enforced. In addition to poisoning and trapping, patients have been isolated, traffic has been supervised on railroads, and vaccination and other prophylactic measures have been enforced.

No cases of plague have been reported in the Province of Chimborazo since February. The disease is declining in the southern zone.

Reports of plague in various places in Peru for January and February 1935 gave 20 cases and 8 deaths for the 2 months, together with 15 infected rats found during the same period.—Ed.

[5] "Experiencias con pulgas como portadoras de peste bubónica." By Drs. John D. Long and Benjamin Mostajo. Boletín de la Oficina Sanitaria Panamericana, November 1934, page 1016.

REPORT OF THE COMMITTEE ON MILK, CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES, 1935

For its 1935 report, the Committee on Milk has considered it advisable to give consideration to the problems which follow.

ADEQUATE ENFORCEMENT OF MILK LEGISLATION

There are many municipalities in this country which have good milk ordinances, but which are not properly enforcing them. The energy and efficiency of enforcement of milk ordinances play an even larger part in the results obtained than the mere passage or the actual wording of an ordinance. An ordinance is necessary, certainly, and it must be properly worded in order that there may be no doubt as to what the legal requirements are; but unless the ordinance is strictly enforced, little will have been accomplished.

For this reason the Committee believes that the citizens and health officers of municipalities should request an annual rating by the State health department of the local milk sanitation work in order that there may be no doubt whatever as to whether the local ordinance is being properly enforced. By this means a high degree of confidence in the quality and safety of the local milk supply will be engendered in the minds of the consumers, and this will be reflected in an increased milk consumption.

THE FOOD AND HEALTH VALUE OF MILK

The Committee considers it again desirable to emphasize the food value of milk One of the members of the Committee (S. J. C.) has suggested, and the suggestion is approved by the Committee, that there be emphasized not only the food value of milk, but also its health value. In this connection, attention is directed to a recent book by Professor Sherman entitled "Food and Health."

THE NEED OF STANDARDIZING MILK CONTROL METHODS

One of the members of the Committee (G. C. R.) has suggested that this report should include a discussion of ways and means for making more uniform the practice of milk control in the United States by the adoption of the United States Public Health Service Milk Ordinance. The Committee feels that, while no compulsion should be used in securing the adoption of the uniform milk control procedure by American municipalities, all State and municipal health departments should be encouraged to give thoughtful consideration to the advantages of a uniform method of milk control. These advantages the Committee believes to be as follows:

(1) If a municipality adopts a method of milk control which is uniform with that in use in a majority of other municipalities in the

Nation, the enforcement thereof will be facilitated by the fact that the health officer will have the advantage of the experience of a great many other health officers in enforcing the same type of ordinance. He can use standard inspection and record forms; and when questions of interpretation arise, he can quickly secure information as to interpretation elsewhere.

(2) When court cases occur, the local courts will be able to have reference to court decisions upon the same type of ordinance in many other localities. Hence the likelihood of favorable court decisions will be increased.

(3) If a municipality adopts a milk ordinance which is uniform with the milk ordinances of many other municipalities, its ordinance will be less subject to change by succeeding political administrations. In the past, milk ordinances have been too much subject to change by successive administrations. A local ordinance which was not the brain child of a previous administration would be less likely to be repealed or modified by the incoming administration.

(4) The uniform milk-control plan would bring about a standardization of milk grade labels, and this would eliminate much of the present confusion which exists in the minds of the traveling American public with reference to the multitude of different grade labels which it now encounters. The present confusion of grade labels has engendered in the mind of the milk consumer a distrust of all grade labels and, hence, a feeling of insecurity as to milk quality and safety. Standardization of grade labeling would therefore increase the confidence of the milk consumer in milk quality and safety, and should simultaneously increase milk consumption. This is desirable, not only from the standpoint of the public health, as previously indicated in this report, but also from the standpoint of the dairy industry.

THE IMPORTANCE OF PASTEURIZATION

The Committee wishes to emphasize the fact that all milk consumed should either have been properly pasteurized commercially or should be boiled or pasteurized at home in accordance with the following simple pasteurization instructions:

"Place the milk in an aluminum vessel on a hot flame and heat to 155° F., stirring constantly; then immediately set the vessel in cold water and continue stirring until cool."

The Committee wishes to stress the importance of properly pasteurizing or boiling all milk supplies either commercially or at home, because only by this means can maximum safety be assured. Every precaution with which milk is surrounded, including pasteurization, is of course subject to "slips" in operation. Health examinations of herds and employees occasionally fail to disclose existing disease or

carrier conditions, and even frequent sanitary inspections do not prevent occasional violations. This includes the operation of pasteurization plants as well as those at farms; but the one thing which differentiates pasteurization from all other protective measures is that, while all other measures may fail to protect entirely even if they are properly applied, pasteurization will always protect if it is properly applied. Even if we examine every milker with the most modern methods, we will occasionally miss disease or carrier conditions; but if we assure ourselves that the proper temperature has actually been applied to milk for the proper time, we can be quite sure that the infection to which it may have been exposed up to that time has been nullified. It is for this reason that the Committee believes all milk should be pasteurized or boiled before it is consumed.

The Committee deems it only fair to report, however, that one of the Committee consultants (O. E. R.) advised against the inclusion of this item in the report. He expressed himself as feeling that the inclusion of this item would seem to create a feeling of complete distrust of certified milk and certain other high grades of raw milk supplies. He indicated that, while he had consistently urged the pasteurization of general milk supplies, he did not feel that he could subscribe to what was apparently such a sweeping condemnation of all kinds of milk except Grade A Pasteurized.

THE IMPORTANCE OF PROPER MILK-PRODUCTION METHODS

In this connection the Committee wishes to stress the importance of proper production methods not only for any milk which is sold raw but also for all milk which is to be pasteurized. It has been repeatedly declared that pasteurization, while an indispensable additional safeguard, can never be substituted for proper production methods. Milk which is neither properly produced nor properly pasteurized is doubly dangerous; but milk which is not properly produced, even though it may apparently have been properly pasteurized, is still not without a modicum of danger, since even the pasteurization process is directed by human hands and, therefore, to some extent subject to human frailty.

Again, if we are to inculcate in the mind of the consumer the proper respect for and confidence in pasteurized milk, it must be possible to assure the consumer not only that the process has been properly carried out but that the milk was of high quality both from the sanitation and esthetic points of view before the pasteurization process was applied. Only in this way can we as health authorities recommend with propriety an increase in the demand for pasteurized milk.

List of Members of Milk Committee

Dr. Earle G. Brown, *Chairman*
Dr. John Brown
Dr. H. D. Chadwick
Dr. R. O. Davidson
Dr. J. D. Dunshee
Dr. C. A. Harper
Dr. P. B. Jenkins
Dr. A. C. Jost
Dr. I. C. Riggin
Dr. G. C. Ruhland
Dr. F. J. Underwood
Dr. William Warwick

List of Consultants to Milk Committee

Dr. S. J. Crumbine
Mr. L. C. Frank
Mr. O. E. Reed
Mr. H. A. Whittaker

COURT DECISIONS ON PUBLIC HEALTH

Regulation of keeping of pigs.—(New Jersey Court of Errors and Appeals; *Wogisch* v. *Board of Health of Borough of Moonachie et al.*, 176 A. 602; decided Jan. 10, 1935.) An ordinance of the Borough of Moonachie provided in part as follows:

No person shall have, keep, raise, or maintain any pig or pigs within the limits of the Borough of Moonachie without first having procured from the board of health of the Borough of Moonachie a permit for that purpose. Such permit shall allow the holder thereof to have, keep, raise, or maintain on the premises mentioned in such permit not more than 10 pigs.

All buildings, yards, enclosures, or premises in which any pig or pigs shall be kept, raised, or maintained shall be at all times kept in a sanitary condition.

In a proceeding to review several convictions for violation of these requirements, the court of errors and appeals quoted in full an opinion rendered by the State supreme court in which, among other things, it was said:

Local boards of health have power to regulate the keeping of pigs. [Statutory citation.]

* * * * * * *

Obviously, the ordinance must be a reasonable exercise of the police power. The fact that the prosecutor owns 21 acres of land seems not pertinent. It is an obvious fact that even in less populated districts more than 10 pigs may be a fit subject of regulation by the authorities charged with the duty to safeguard the public health. There is nothing in the record to indicate an unreasonable exercise of the police power. Nor would it appear that the action taken was arbitrary. Nearly every health code in the State contains regulations concerning the keeping of pigs, since it has long been recognized that the occupation is not one to be followed without reasonable regulation.

It is next suggested that the license fee of $10 was imposed for revenue purposes only. When it is borne in mind that inspection of premises devoted to the raising of even 10 pigs is necessary, the fee obviously is not unreasonable. It cannot be said that the fee is primarily for revenue purposes. It is true that the members of the board of health serve without compensation and that no paid inspectors are employed. However, the board cannot function without the receipt of fees to meet the necessary expenses of carrying on. The fee exacted broadly is no more than a fee for the expenses incident to the issuance thereof. More work is

involved in the issuance of every license than the mere printing of the paper upon which it is issued. But in the instant case inspection from time to time is necessary.

Injunctive relief granted against maintenance of nuisance by cork manufacturing plant.—(New Jersey Court of Errors and Appeals; *The State, The Board of Health of the Township of Lyndhurst, Respondent,* v. *United Cork Companies, Appellant,* 176 A. 142; decided Jan. 10, 1935.) There was rendered in this case the following per curiam opinion:

The decree appealed from will be affirmed for the reasons stated in the opinion [1] filed in the court below by Vice Chancellor Lewis, reported in 116 N. J. Eq. 4, 172 A. 347.

DEATHS DURING WEEK ENDED JUNE 29, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended June 29, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,514	7,779
Deaths per 1,000 population, annual basis	10.5	10.8
Deaths under 1 year of age	544	565
Deaths under 1 year of age per 1,000 estimated live births	50	52
Deaths per 1,000 population, annual basis, first 26 weeks of year	12.2	12.1
Data from industrial insurance companies:		
Policies in force	67,900,778	67,791,606
Number of death claims	12,274	12,048
Death claims per 1,000 policies in force, annual rate	9.4	9.3
Death claims per 1,000 policies, first 26 weeks of year, annual rate	10.4	10.6

[1] For an abstract of this opinion see PUBLIC HEALTH REPORTS, Sept. 7, 1934, p. 1061.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended July 6, 1935, and July 7, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 6, 1935, and July 7, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
New England States:								0
Maine		1		1	81	6	0	0
New Hampshire	1				3	65	0	0
Vermont		1			41	16	0	0
Massachusetts	5	10			166	299	0	0
Rhode Island	3				201	21	0	0
Connecticut	11	1		2	223	118	1	0
Middle Atlantic States:								
New York	27	28		[1] 1	1,333	429	11	2
New Jersey	17	18	2	1	635	442	0	3
Pennsylvania	33	30			644	856	3	14
East North Central States:								
Ohio	21	16	1	3	743	387	4	2
Indiana	12	3	8	1	28	67	0	0
Illinois	39	37	13	5	500	702	11	5
Michigan	6	7			748	179	0	0
Wisconsin	1	6	11	2	942	821	4	3
West North Central States:								
Minnesota [2]	1	9		2	8	40	0	1
Iowa	3				13	61	1	0
Missouri	14	19	14		39	51	4	0
North Dakota	1	3	17		1	59	0	1
South Dakota	3	2			42	36	0	0
Nebraska	1	4			40	7	0	0
Kansas	5	2			55	77	2	0
South Atlantic States:								
Delaware		1			5	13	0	0
Maryland [2 3]	4	2	4		32	149	2	0
District of Columbia	7	2	1		20	12	2	0
Virginia [3 4]	6	6			76	276	3	1
West Virginia	14	11	7	5	84	59	0	1
North Carolina [4]	4	6		1	8	142	2	0
South Carolina	3	1	27	53	5	36	1	0
Georgia [4]	3						1	0
Florida [4]	1	6			9	67	0	0
East South Central States:								
Kentucky	4	6	7	31	53	213	2	1
Tennessee	8	4	3	3	18	22	2	0
Alabama [4]	16	16	15		24	102	1	0
Mississippi [3]	4	6					0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 6, 1935, and July 7, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
West South Central States:								
Arkansas	3	1	2	3	2	5	2	1
Louisiana [4]	11	13	15	3	4	50	1	0
Oklahoma [5]	6	3	17	3	56	25	6	1
Texas [4]	17	42	39	41	49	219	3	1
Mountain States:								
Montana [2]	3	1		6	38	10	0	0
Idaho			1		3	3	0	0
Wyoming [2]		2			15	13	0	2
Colorado	5	3			66	398	1	0
New Mexico	2			8	2	13	0	1
Arizona	1	5	3	4	1	3	0	0
Utah [3]					6	4	0	0
Pacific States:								
Washington	1	1		1	103	69	5	3
Oregon [2]		2	4	17	66	9	1	1
California	20	32	20	14	477	209	2	1
Total	347	369	231	211	7,708	6,860	78	35
First 27 weeks of year	15,878	18,160	102,548	46,811	675,961	651,646	3,708	1,413

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
New England States:								
Maine	1	0	16	14	0	0	1	1
New Hampshire	0	1	6	2	0	0	0	0
Vermont	0	0	1		0	0	0	0
Massachusetts	1	0	105	71	0	0	2	1
Rhode Island	1	0	1	4	0	0	1	1
Connecticut	0	0	23	14	0	0	0	1
Middle Atlantic States:								
New York	11	7	283	173	0	0	7	5
New Jersey	0	2	41	41	0	0	3	16
Pennsylvania	0	2	209	177	0	0	12	14
East North Central States:								
Ohio	1	1	113	177	2	0	25	9
Indiana	0	0	22	31	3	0	8	5
Illinois	2	3	303	190	1	2	12	35
Michigan	2	0	102	113	2	0	10	5
Wisconsin	1	1	199	87	19	9	5	2
West North Central States:								
Minnesota [2]	1	1	74	31	7	1	22	2
Iowa	0	0	24	17	10	4	0	3
Missouri	1	0	15	25	1	2	12	23
North Dakota	0	0	9	4	1	1	0	1
South Dakota	1	1	10	1	6	0	2	0
Nebraska	0	0	9	8	17	4	0	0
Kansas	1	1	23	15	4	0	5	10
South Atlantic States:								
Delaware	0	0	3	2	0	0	2	0
Maryland [2] [3]	1	1	18	15	0	0	4	9
District of Columbia	0	0	12	7	0	0	0	1
Virginia [2] [4]	28	1	8	15	0	0	11	18
West Virginia	1	3	25	18	0	0	8	11
North Carolina [4]	55	0	15	41	0	0	28	6
South Carolina	0	0	2	1	0	0	29	19
Georgia [4]	0	0		1	0	0	19	39
Florida [4]	2	0	5		0	0	4	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 6, 1935, and July 7, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934	Week ended July 6, 1935	Week ended July 7, 1934
East South Central States:								
Kentucky	0	5	--------	22	1	3	16	79
Tennessee	5	1	11	8	0	0	30	21
Alabama [4]	2	0	8	5	0	0	32	20
Mississippi [3]	0	0	5	7	0	0	9	16
West South Central States:								
Arkansas	0	0	3	1	4	0	17	21
Louisiana [4]	3	0	1	2	0	0	6	7
Oklahoma [5]	1	0	1	3	0	1	19	19
Texas [4]	2	5	14	30	4	14	43	66
Mountain States:								
Montana [3]	0	3	9	5	9	0	3	2
Idaho	0	4	4	1	0	0	0	0
Wyoming [3]	0	0	7	17	8	7	0	0
Colorado	0	0	40	10	3	0	2	5
New Mexico	0	0	7	2	0	0	8	5
Arizona	0	2	6	--------	0	0	0	4
Utah [3]	0	1	37	2	0	0	0	0
Pacific States:								
Washington	0	2	17	18	15	11	1	3
Oregon [3]	0	2	18	19	3	1	6	2
California	32	266	79	79	4	1	3	9
Total	156	316	1,946	1,496	124	61	427	518
First 27 weeks of year	1,181	2,415	173,424	141,943	4,976	3,580	5,010	5,723

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended July 6, 1935, 14 cases, as follows: Minnesota, 1; Maryland 1; Virginia, 2; Montana, 1; Wyoming, 7; Oregon, 2.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended July 6, 1935, 25 cases, as follows: Virginia, 1; North Carolina, 1; Georgia, 8; Florida, 1; Alabama, 9, Louisiana, 1, Texas, 4.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May 1935										
Nevada	5	3	3	--------	317	--------	0	6	0	35
North Dakota	1	6	9	--------	112	--------	0	241	1	21
Puerto Rico	--------	56	31	810	95	--------	0	1	0	
June 1935										
Connecticut	2	35	4	--------	2,323	--------	2	260	0	6
Delaware	2	7	--------	--------	59	--------	0	17	0	8
Florida	3	23	1	56	38	7	1	12	0	33
Indiana	11	51	27	--------	343	1	2	232	4	10

May 1935

	Cases
Chicken pox:	
Nevada	43
North Dakota	90
Puerto Rico	122
Dysentery:	
Puerto Rico	33
Mumps:	
North Dakota	48
Puerto Rico	54
Ophthalmia neonatorum:	
Puerto Rico	5
Paratyphoid fever:	
Puerto Rico	3
Puerperal septicemia:	
Puerto Rico	6
Rocky Mountain spotted fever:	
Nevada	1
Tetanus:	
Puerto Rico	9
Tetanus, infantile:	
Puerto Rico	3
Trachoma:	
Puerto Rico	2
Vincent's infection:	
North Dakota	1

May 1935—Continued

	Cases
Whooping cough:	
Nevada	18
North Dakota	51
Puerto Rico	173

June 1935

	Cases
Chicken pox:	
Connecticut	522
Delaware	7
Florida	16
Indiana	89
Conjunctivitis, infectious:	
Connecticut	40
Delaware	1
Dengue:	
Florida	1
Dysentery:	
Connecticut (bacillary)	3
Florida (amoebic)	2
Epidemic encephalitis:	
Connecticut	1
Delaware	1
Indiana	1
German measles:	
Connecticut	1,072
Delaware	4

June 1935—Continued

	Cases
Mumps:	
Connecticut	151
Delaware	55
Florida	64
Indiana	80
Paratyphoid fever:	
Connecticut	20
Indiana	2
Rabies in animals:	
Connecticut	3
Indiana	89
Rabies in man:	
Indiana	1
Septic sore throat:	
Connecticut	21
Typhus fever:	
Florida	3
Undulant fever:	
Connecticut	2
Florida	52
Indiana	2
Whooping cough:	
Connecticut	225
Delaware	7
Florida	51
Indiana	105

PLAGUE-INFECTED GROUND SQUIRRELS IN MODOC COUNTY, CALIF.

Under date of July 5, 1935, the Director of Public Health of California reported positive findings for plague in 8 ground squirrels received at the laboratory on June 17 from ranches 2 to 3 miles east and 1 mile south of Alturas, and in 1 ground squirrel received at the laboratory on June 21 from a ranch 5 miles north of Alturas.

WEEKLY REPORTS FROM CITIES

City reports for week ended June 29, 1935

This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
		Cases	Deaths								
Maine:											
Portland	0		0	13	0	0	0	0	0	1	20
New Hampshire:											
Concord											
Nashua	0			0		0	0		0	0	
Vermont:											
Barre											
Burlington	0	1	1	0	0	0	0	0	0	0	9
Rutland	0		0		0	2	0	0	0	4	6
Massachusetts:											
Boston	3		0	34	10	34	0	7	0	9	208
Fall River	0		0	4	0	6	0	1	0	2	34
Springfield	0		0	27	0	17	0	3	0	3	40
Worcester	0		0	5	2	10	0	3	0	0	51
Rhode Island:											
Pawtucket	0		0	0	0	0	0	0	0	0	12
Providence	1		0	196	2	5	0	3	0	5	49
Connecticut:											
Bridgeport	1		0	15	1	7		0	0	2	22
Hartford	0		0	3	0	6	0	1	0	12	38
New Haven	0		0	30	2	0	0	0	0	3	35
New York:											
Buffalo	0		0	18	9	40	0	7	0	29	120
New York	25		2	799	100	172	0	62	9	115	1,355
Rochester											
Syracuse	0		0	331	1	8	0	1	0	26	51

City reports for week ended June 29, 1935—Continued

State and city	Diphtheria, cases	Influenza, Cases	Influenza, Deaths	Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
New Jersey:											
Camden	4	-	0	-	2	4	0	2	0	8	19
Newark	0	2	0	141	1	5	0	2	0	37	71
Trenton	0	-	0	1	1	2	0	2	0	0	30
Pennsylvania:											
Philadelphia	2	-	0	38	18	41	0	18	61	75	380
Pittsburgh	4	-	1	75	8	24	0	9	0	23	152
Reading	0	-	0	48	0	4	0	1	0	0	19
Scranton	0	-	-	6	-	4	0	-	0	1	-
Ohio:											
Cincinnati	0	-	0	6	3	5	0	2	1	6	120
Cleveland	6	10	1	284	16	30	0	8	0	38	177
Columbus	0	-	0	32	4	8	0	3	0	4	77
Toledo	0	-	0	43	1	10	0	7	0	9	63
Indiana:											
Anderson	1	-	0	0	0	1	0	0	0	2	7
Fort Wayne	2	-	0	0	1	2	0	0	0	0	17
Indianapolis	2	-	0	19	13	7	0	7	1	13	110
South Bend	0	-	0	1	0	0	0	1	0	1	15
Terre Haute	0	-	0	0	0	0	0	0	0	0	19
Illinois:											
Alton	0	-	0	0	2	4	0	0	0	0	9
Chicago	29	5	3	361	46	248	0	33	5	109	659
Elgin	0	-	0	2	2	5	0	1	0	0	8
Moline	0	-	0	0	0	0	0	0	0	0	6
Springfield	0	-	0	3	1	3	0	1	0	8	20
Michigan:											
Detroit	5	1	-	122	17	36	0	14	1	101	231
Flint	1	-	0	2	1	6	0	1	0	5	19
Grand Rapids	0	-	0	48	1	22	0	1	0	22	22
Wisconsin:											
Kenosha	0	-	0	1	0	3	0	0	0	4	2
Milwaukee	0	-	0	325	1	51	0	3	0	33	93
Racine	0	-	0	72	1	16	0	1	0	23	11
Superior	0	-	0	3	0	1	0	0	0	2	8
Minnesota:											
Duluth	0	-	0	7	1	3	0	0	1	2	18
Minneapolis	1	-	0	14	1	45	0	1	23	1	114
St. Paul	0	-	0	24	5	12	1	1	3	10	53
Iowa:											
Cedar Rapids	0	-	-	1	-	0	0	-	0	2	-
Davenport	1	-	-	0	-	1	0	-	0	0	-
Des Moines	2	-	-	1	-	3	0	-	0	0	30
Sioux City	0	-	-	0	-	1	6	-	0	4	-
Waterloo	1	-	-	0	-	0	0	-	0	4	-
Missouri:											
Kansas City	2	-	0	18	7	2	0	4	0	1	95
St. Joseph	0	-	0	1	4	0	0	0	0	0	32
St. Louis	8	1	-	13	3	3	0	7	1	10	182
North Dakota:											
Fargo	0	-	0	0	0	2	0	0	3	1	7
Grand Forks	0	-	-	8	-	0	0	-	0	1	-
South Dakota:											
Aberdeen	0	-	-	2	-	1	0	-	0	0	-
Nebraska:											
Omaha	0	-	0	10	1	4	1	1	0	1	66
Kansas:											
Lawrence	0	-	-	1	-	0	0	-	1	0	2
Topeka	0	-	0	10	3	2	0	0	0	25	35
Wichita	0	-	0	-	-	1	1	-	0	4	29
Delaware:											
Wilmington	1	-	0	1	1	1	0	1	0	0	25
Maryland:											
Baltimore	3	2	1	9	15	16	0	14	0	36	194
Cumberland	0	-	0	1	1	0	0	1	0	0	29
Frederick	0	-	0	0	0	0	0	0	0	0	2
District of Col.:											
Washington	9	1	1	9	5	7	0	9	3	3	126
Virginia:											
Lynchburg	0	-	0	2	1	0	0	0	0	35	8
Norfolk	1	-	0	1	0	0	0	0	1	0	21
Richmond	0	-	1	11	0	2	0	3	0	0	57
Roanoke	1	-	-	2	-	1	0	-	1	0	14
West Virginia:											
Charleston	0	-	0	0	0	0	0	1	0	1	10
Huntington	1	-	-	2	-	0	0	-	0	0	-
Wheeling	0	-	0	33	0	0	0	0	0	2	14

City reports for week ended June 29, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
		Cases	Deaths								
North Carolina:											
Gastonia	0			1		0	0		0	2	1
Raleigh											
Wilmington	0		0	0	0	0	0	0	0	5	7
Winston-Salem	0		0	0	0	0	0	0	1	3	16
South Carolina:											
Charleston	0	2		0	1	0	0	1	0	0	18
Columbia			0		1			0			10
Florence	0		0	0	1	0	0	0	0	0	12
Greenville	0		0	0	4	0	0	0	0	0	27
Georgia:											
Atlanta	2	2	0	1	3	2	0	4	1	36	62
Brunswick	0		0	0	1	0	0	0	1	0	6
Savannah	0		0	0	2	0	0	1	0	5	27
Florida:											
Miami	2		0	3	2	3	0	2	0	3	23
Tampa	1			0		0	0		1	0	22
Kentucky:											
Ashland											
Covington	0		0	0	1	1	0	2	0	1	27
Lexington	0		0	5	0	0	0	1	0	0	17
Tennessee:											
Knoxville	1		0	4	1	2	0	0	0	0	24
Memphis	0		1	0	4	4	0	5	2	16	100
Nashville	0		0	1	4	1	0	2	0	17	50
Alabama:											
Birmingham	1	6	0	6	1	2	0	6	2	6	57
Mobile	0		1	1	2	1	0	0	0	0	23
Montgomery	1			0		0	0		1	0	
Arkansas:											
Fort Smith	1			0		0	0		1	0	
Little Rock	0		0	0	0	1	0	2	0	0	2
Louisiana:											
New Orleans	2		0	4	10	4	0	18	6	0	141
Shreveport	1		0	0	2	0	0	4	0	1	45
Texas:											
Dallas	1		0	1	1	4	0	2	0	1	54
Fort Worth	0		0	0	0	3	0	2	0	1	32
Galveston	0		0	1	4	0	0	0	0	0	14
Houston	2		0	1	9	2	0	4	2	4	73
San Antonio	0		0	1	1	0	0	6	3	0	76
Montana:											
Billings	0		0	5	1	2	0	0	0	2	4
Great Falls	0		0	0	1	0	0	0	0	4	9
Helena	0		0	3	0	0	0	0	0	8	4
Missoula	0		0	0	0	0	0	0	1	0	4
Idaho:											
Boise	0		0	3	0	0	0	0	0	0	13
Colorado:											
Colorado Springs	0		0	2	1	10	0	2	0	0	10
Denver	9		0	39	6	16	0	5	0	1	68
Pueblo	0		0	3	1	2	0	0	0	0	7
New Mexico:											
Albuquerque	0		0	0	0	0	0	6	0	3	17
Utah:											
Salt Lake City	0		0	5	4	33	0	0	0	43	32
Nevada:											
Reno	0		0	0	0	0	0	0	0	0	2
Washington:											
Seattle	0			157		12	0		2	2	
Spokane	0		0	6	4	2	0	0	0	1	36
Tacoma	0		0	1	2	0	3	1	0	0	20
Oregon:											
Portland	0		0	26	5	3	0	4	0	0	95
Salem	0	4		2		0	0		0	0	
California:											
Los Angeles	9	21	0	63	15	28	2	19	1	14	276
Sacramento	3		0	32	0	15	0	3	0	1	28
San Francisco	1		1	66	5	9	0	8	2	8	119

City reports for week ended June 29, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	0	1	0
New York:			
Buffalo	0	0	1
New York	9	3	5
New Jersey:			
Camden	0	0	1
Newark	0	0	1
Pennsylvania:			
Philadelphia	1	1	0
Pittsburgh	0	1	0
Ohio:			
Cincinnati	1	0	0
Cleveland	3	2	0
Toledo	1	0	1
Illinois:			
Chicago	2	4	1
Michigan:			
Detroit	2	2	1
Minnesota:			
St. Paul	1	0	0
Missouri:			
St. Louis	0	1	0
Nebraska:			
Omaha	0	1	0
Maryland:			
Baltimore	2	0	0
District of Columbia:			
Washington	4	3	0
Virginia:			
Lynchburg	0	0	2
Norfolk	2	2	0
Richmond	0	0	6
North Carolina:			
Winston-Salem	1	0	0
South Carolina:			
Greenville	1	1	0
Georgia:			
Atlanta	1	0	0
Florida:			
Miami	0	0	1
Tennessee:			
Memphis	0	0	1
Alabama:			
Montgomery	1	0	0
Arkansas:			
Forth Smith	1		0
Louisiana:			
New Orleans	0	0	4
Texas:			
Dallas	1	1	0
New Mexico:			
Albuquerque	0	1	0
Utah:			
Salt Lake City	1	1	0
Washington:			
Seattle	1	0	0
Spokane	0	1	0
Oregon:			
Portland	1	1	0
California:			
Los Angeles	2	0	20
Sacramento	1	2	0

Epidemic encephalitis.—Cases: New York, 4; Pittsburgh, 1; Cleveland, 1; Toledo, 1; Chicago, 2; St. Paul, 1; Kansas City, Mo., 1; New Orleans, 1.

Pellagra.—Cases. Philadelphia, 2; Atlanta, 1; Savannah, 3; Miami, 1; San Francisco, 5.

Rabies in man—Los Angeles, 1 death.

Typhus fever.—Cases: Savannah, 2; Montgomery, 2.

FOREIGN AND INSULAR

CANADA

Vital statistics—Fourth quarter 1934—Comparative.—The Bureau of Statistics of the Dominion of Canada has published the following preliminary statistics for the fourth quarter of 1934. The rates are computed on an annual basis. There were 19.1 live births per 1,000 population during the fourth quarter of 1934 and 19.2 per 1,000 population in the same quarter of 1933. The death rate was 9.3 per 1,000 population for the fourth quarter of 1934 and the same rate for the fourth quarter of 1933. The infant-mortality rate for the fourth quarter of 1934 was 75.0 per 1,000 live births and 72.6 in the same period of 1933. The maternal death rate was 5.2 per 1,000 live births for the fourth quarter of 1934 and 5.1 for the same quarter of 1933.

The accompanying tables give the numbers of births, deaths, and marriages by Provinces for the fourth quarter of 1934, and deaths from certain causes in Canada for the fourth quarter of 1934, and the corresponding quarter of 1933, and by Provinces for the fourth quarter of 1934:

Number of births, deaths, and marriages, fourth quarter, 1934

Province	Live births	Deaths (exclusive of still-births)	Deaths under 1 year of age	Maternal deaths	Marriages
Canada [1]	51,964	25,380	3,898	271	20,828
Prince Edward Island	441	269	40	4	183
Nova Scotia	2,662	1,420	174	17	1,158
New Brunswick	2,385	1,143	229	11	907
Quebec	17,636	7,971	1,821	97	4,361
Ontario	14,559	8,731	848	77	6,816
Manitoba	3,235	1,349	177	15	1,772
Saskatchewan	4,787	1,527	289	17	2,285
Alberta	3,894	1,338	208	18	2,068
British Columbia	2,365	1,632	112	15	1,278

[1] Exclusive of Yukon and the Northwest Territories.

Deaths

Cause of death	Canada [1] (fourth quarter)		Province, fourth quarter 1934								
	1933	1934	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Automobile accidents	263	333	1	6	21	73	151	18	13	19	31
Cancer	2,737	2,776	28	185	107	717	1,045	188	168	134	204
Diarrhea and enteritis	841	1,045	5	20	63	683	189	18	30	21	16
Diphtheria	70	71	1	1	1	44	6	13	2	1	2
Diseases of arteries	1,750	1,860	20	106	61	342	967	97	58	81	128
Diseases of the heart	4,002	4,131	32	182	143	998	1,806	213	226	214	318
Homicide	25	37			1	11	11	4	4	3	3
Influenza	571	489	8	24	22	183	114	10	39	52	37
Measles	21	83		9	12	48	2	6	6		
Nephritis	1,356	1,360	17	70	47	599	388	47	65	57	70
Pneumonia	1,736	1,577	25	80	77	478	498	119	114	98	88
Poliomyelitis	13	24		2	2	2	14		2	2	
Puerperal causes	261	271	4	17	11	97	77	15	17	18	15
Scarlet fever	52	78	1	4	9	46	14	1	3		
Smallpox		1								1	
Suicide	211	233	2	3	3	27	92	20	24	29	33
Tuberculosis	1,470	1,414	12	83	62	606	300	81	67	65	138
Typhoid fever and paratyphoid fever	88	82	1	1	2	45	16	4	8	3	2
Other violent deaths	931	992	6	62	42	214	385	53	72	63	95

[1] Exclusive of Yukon and the Northwest Territories.

CEYLON

Malaria.—According to a report dated May 13, 1935, the second epidemic of malaria in Ceylon which began to rise during the second week of April reached its height toward the end of the month and during the week ended May 4, 1935, a fairly general decrease in the number of malarial patients attending hospitals and dispensaries was apparent. The following figures show the weekly dispensary attendance for 3 weeks in the four provinces within the epidemic area:

	Week ended—		
	Apr. 20	Apr. 27	May 4
Western Province	25,436	31,429	28,775
Central Province	16,741	19,376	17,891
Sabaragamuwa Province	26,512	29,449	26,428
Northwestern Province	16,586	23,827	22,623
Total	85,275	104,081	95,717

CUBA

Habana—Communicable diseases—4 weeks ended June 8, 1935.—During the 4 weeks ended June 8, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	1	1	Tuberculosis	32	13
Malaria	[1] 24	1	Typhoid fever	[1] 9	6

[1] Includes imported cases.

YUGOSLAVIA

Communicable diseases—May 1935.—During the month of May 1935 certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	34	3	Paratyphoid fever	12	----------
Cerebrospinal meningitis	8	[illegible]	Scarlet fever	222	4
Diphtheria and croup	428	25	Sepsis	12	4
Dysentery	26	1	Tetanus	53	21
Erysipelas	159	7	Typhoid fever	163	23
Influenza	883	3	Typhus fever	64	5
Measles	689	18			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for June 28, 1935, pp. 875–890. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued July 26, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Argentina.—During the month of June 1935 plague was reported in Argentina as follows: 2 cases, and 2 deaths at Victorica, Pampa Territory, and 1 case with 1 death at Frias, Santiago del Estero Province.

China—Fukiang Province.—According to a report dated July 4, 1935, 76 cases of plague, with 58 deaths, were reported at Chuanchow, Fukiang Province, China. The report also stated that plague was present at Lungyen.

Hawaii Territory—Hamakua District—Hamakua Mill Sector.—On June 27, 1935, 1 plague-infected rat was found in Hamakua Mill Sector, Hamakua District, Hawaii Territory.

Peru.—During the month of May 1935 plague was reported in Peru, as follows: Lambayeque Department, 1 case; Libertad Department, 3 cases, 1 death; Lima City, Lima Department, 6 cases, 4 deaths; 2 other suspected cases of plague with 2 deaths were also reported in Lambayeque Department, and 1 suspected case with 1 death was reported in Libertad Department.

United States—California.—A report of plague-infected ground squirrels in Modoc County, Calif., appears on page 941 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Iraq—Baghdad.—During the week ended June 8, 1935, 1 case of smallpox with 1 death was reported at Baghdad, Iraq.

Yellow Fever

Brazil.—During the week ended June 29, 1935, yellow fever was reported in Brazil, as follows: Picos, Maranhao State, 1 case, 1 death; Theophilo Ottoni, Minas Geraes State, 2 cases, 2 deaths; Curralinho, Para State, 1 case, 1 death.

x

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES
PUBLIC HEALTH SERVICE

VOLUME 50 :: :: NUMBER 30

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IN THIS ISSUE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 39; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

Requests for and communications regarding the PUBLIC HEALTH REPORTS, reprints, or supplements should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C. Subscribers should remit direct to the Superintendent of Documents, Washington, D. C.

Librarians and others should preserve their copies for binding, as the Public Health Service is unable to supply the general demand for bound copies. Indexes will be supplied upon request.

CONTENTS

PUBLIC HEALTH REPORTS

VOL. 50 JULY 26, 1935 NO. 30

MILK-SANITATION RATINGS OF CITIES

Cities for Which Milk-Sanitation Ratings of 90 Percent or More Were Reported by the State Milk-Sanitation Authorities During the Period July 1, 1933, to June 30, 1935

The accompanying table gives the fourth semiannual revision of the list of American municipalities for which milk-sanitation ratings of 90 percent or more have been reported by their respective State milk-sanitation authorities, and includes those reported from July 1, 1933, to June 30, 1935. Lists previously published have now lapsed and should be discarded.

The primary reason for announcing such ratings from time to time is to encourage the municipalities of the United States to attain and maintain a high level of excellence in the public health control of milk supplies. Another reason is to furnish the traveling public with some means of knowing the cities in which milk sanitation is properly done. It is emphasized, however, that the Public Health Service does not intend to imply that cities not on the list are necessarily doing poor milk-control work. Some cities which are doing excellent milk-control work are not included, because arrangements have not yet been made for the determination of their ratings by the State milk-control authority. In other cases the ratings which have been determined by the State are now more than 2 years old and have therefore lapsed.

The rules under which a municipality is included in this list are as follows:

(1) All ratings must have been determined by the State milk-control authority in accordance with the Public Health Service rating method, based upon the Public Health Service Milk Ordinance and Code.

(2) No city will be included in the list unless both its pasteurized-milk and its raw-milk ratings are 90 percent or more; provided that cities in which only raw milk is sold will be included if the raw-milk ratings are 90 percent or more.

(3) The rating used will be the latest rating submitted to the Public Health Service, but no rating will be used which is more than 2 years old.

(4) Additional supplementary lists will hereafter be published quarterly, and complete revisions of the entire list semiannually.

(5) Occasional surprise checks will be made of the rating methods used by the State, and discounts will be applied if State ratings are found to be more than 5 percent too high.

(6) Ratings will be accepted for any city irrespective of the type of milk ordinance in force, provided that the ratings have been made in accordance with paragraph (1) above.

Cities are urgently advised to bring their ordinances up to date at least every 5 years, since ratings will hereafter be made on the basis of later editions if those adopted locally are more than 5 years old. It is also urged that cities now on the list do not permit their ratings to lapse, as ratings more than 2 years old cannot be used.

Cities which are not now on the list should improve their milk supplies as much as possible and then request the State milk-control authority to determine their ratings. Where the Public Health Service Milk Ordinance has not as yet been adopted, thoughtful consideration should be given to the advisability of its adoption, for the reason that the standard rating method is based upon the grade A requirements of the Public Health Service Milk Ordinance, and it is obviously easier to satisfy these requirements if they are included in the local legislation. Copies of the Public Health Service Milk Ordinance and Code are available upon request.

State milk-control authorities which are not now equipped to determine municipal milk-sanitation ratings are urged to equip themselves as soon as possible in fairness to their cities. The personnel required is very small, as in most States one milk specialist will be sufficient for the rating work. The Public Health Service will, upon request from the State milk-control authority, furnish assistance in standardizing the rating work.

Cities which are enforcing the Public Health Service Milk Ordinance and which have nevertheless failed to achieve ratings of 90 percent or more, should determine whether their low ratings resulted from failure to enforce the ordinance strictly or from failure to bring their ordinance up to date.

The ratings on which the accompanying table is based apply only to market milk. Family-cow milk is not included; and consumers should, therefore, not infer that the milk from neighborhood cows in such cities is of a high grade.

The inclusion of a city in this list means that the pasteurized milk sold in the city, if any, is of such a degree of excellence that the weighted average of the percentages of compliance with the various items of sanitation required for grade A pasteurized milk is 90 percent or more, and that, similarly, the raw milk sold in the city is of such a degree of excellence that the weighted average of the percentages of compliance with the various items of sanitation required for grade A raw milk is 90 percent or more. However, high-grade pasteurized

milk is safer than high-grade raw milk, because of the added protection of pasteurization. To secure this added protection, friendly customers of high-grade raw-milk dairies need not discontinue their patronage, but may pasteurize the milk at home in the following simple manner: Place the milk in an aluminum vessel on a hot flame and heat to 155° F., stirring constantly; then immediately set the vessel in cold water and continue stirring until cool.

Cities having ratings of 90 percent or more according to last rating received during the period July 1, 1933, to June 30, 1935

City	Percentage of milk pasteurized	Date of rating
KANSAS (3 CITIES)		
Horton	0	Dec. 4, 1934
Lawrence	61	March 1935
Topeka	51	Nov. 28, 1934
KENTUCKY (5 CITIES)		
Bowling Green	31	Dec. 5, 1934
Henderson	30	April 1935
Leitchfield	0	June 1935
Louisville	97	May 1935
Somerset	0	June 1935
MINNESOTA (1 CITY)		
Winona	100	Sept. 14, 1934
MISSISSIPPI (8 CITIES)		
Brookhaven	0	May 17, 1935
Cleveland	41	July 20, 1933
Durant	0	May 13, 1935
Greenwood	23	July 14, 1933
Jackson	22	Aug. 11, 1933
Lexington	0	May 13, 1935
Ocean Springs	0	July 7, 1933
Yazoo City	0	May 14, 1935
MISSOURI (2 CITIES)		
Ash Grove	0	Aug. 24, 1934
Jefferson City	41	Dec. 15, 1934
NEW MEXICO (3 CITIES)		
Clayton	0	June 20, 1935
Deming	0	Mar. 26, 1935
Las Cruces	20	Feb. 27, 1934
NORTH CAROLINA (30 CITIES)		
Angier	0	Sept. 4, 1934
Apex	0	Sept. 28, 1933
Beaufort	0	July 15, 1933
Buies Creek	0	Sept. 4, 1934
Charlotte	19	Dec. 15, 1934
Clinton	0	Oct. 25, 1934
Coats	0	Sept. 4, 1934
Dunn	0	Do.
Durham	83	Dec. 14, 1934
Elkin	0	Sept. 12, 1934
Erwin	0	Oct. 10, 1933
Greensboro	62	Nov. 24, 1934
Hamlet	0	Aug. 28, 1934
Hendersonville	35	Oct. 3, 1933
High Point	60	Oct. 21, 1933
Hope Mills	0	Sept. 6, 1934
Lenoir	0	Nov. 20, 1934
Lillington	0	Sept. 4, 1934
Lumberton	0	Sept. 11, 1934
Manteo	0	Oct. 23, 1934
Monroe	0	Oct. 24, 1934
Mount Airy	0	Sept. 12, 1934
NORTH CAROLINA (30 CITIES)—continued		
New Bern	0	Oct. 11, 1934
Pinehurst	0	Dec. 15, 1934
Rockingham	0	Aug. 29, 1934
Rocky Mount	20	Sept. 12, 1934
Southern Pines	0	Aug. 31, 1934
Statesville	0	Mar. 27, 1935
Williamston	0	Dec. 12, 1934
Winston-Salem	46	Nov. 11, 1934
OKLAHOMA (3 CITIES)		
Bartlesville	15	Mar. 6, 1934
Blackwell	46	Sept. 5, 1934
Tulsa	74	Feb. 16, 1934
OREGON (1 CITY)		
Portland	76	Oct. 1934
SOUTH CAROLINA (1 CITY)		
Charleston	100	Apr. 1934
TENNESSEE (5 CITIES)		
Bristol	48	May 8, 1935
Clarksville	42	Apr. 26, 1935
Dyersburg	0	Oct. 1934
Memphis	80	May 29, 1935
Union City	32	Sept. 28, 1934
TEXAS (17 CITIES)		
Abilene	70	Oct. 17, 1934
Amarillo	63	May 30, 1934
Brenham	0	Apr. 20, 1934
Canyon	0	May 29, 1934
Colorado	0	Sept. 6, 1934
Corsicana	0	Feb. 22, 1934
Dallas	73	May 1934
Denton	58	Sept. 22, 1934
El Paso	70	Aug. 24, 1934
Fort Worth	83	Feb. 23, 1935
Jacksonville	0	May 1934
Livingston	0	Oct. 1934
Lubbock	32	Dec. 14, 1934
San Antonio	56	July 1934
Sherman	21	Dec. 21, 1934
Texarkana	20	May 1934
Tyler	50	Mar. 1934
VIRGINIA (1 CITY)		
Bristol	48	May 8, 1935
WASHINGTON (2 CITIES)		
Camas	10	Sept. 1934
Vancouver	24	Do.

RAT-FLEA SURVEY OF THE PORT OF PHILADELPHIA, PA.

By C. W. Vogel, *Medical Director*, and Charles Cadwallader, *Acting Assistant Surgeon, United States Public Health Service*

This report is one of a series of similar reports on rat-flea surveys conducted by the United States Public Health Service at different ports for the purpose of obtaining and recording data to be used in the evaluation of the endemic typhus as well as the bubonic plague hazard at such ports This work also is in accord with the recommendations of the International Sanitary Convention.

This survey is similar to a survey made by Senior Surgeon H. E. Hasseltine at the Port of Norfolk, a report of which was published in the Public Health Reports for March 15, 1919. The methods of trapping rats and obtaining fleas in the Philadelphia survey differ only slightly from those used at Norfolk.

METHODS

The survey of the Port of Philadelphia was inaugurated in May 1932 and terminated in December 1933. From January 5 until February 15, 1934, a typhus-fever control survey was made through funds furnished by the Civil Works Administration.

The findings of the typhus-fever survey are included with those of the previous rat-flea survey, as the two surveys were of the same general character, and the areas trapped on both occasions were approximately the same.

Steel traps were used in the typhus-fever survey, whereas in the rat-flea survey, cage traps were used. The work of securing the rat-flea data was performed from May 1932 until December 1933 by the employees of the fumigating division of the Marcus Hook (Pa.) quarantine station, under the supervision of the medical officer in immediate charge of that division, and the laboratory work was done at the garage and warehouse at the station. The traps containing rats were always placed separately in bags for transportation. Many fleas were recovered in this way which would probably have been lost had the traps been transported uncovered. The fleas were obtained by combing the rodents and also from the bags used as containers for the traps. All the rats were subjected to post-mortem examination, but no signs of plague were discovered.

It had been the practice in this survey to have all the quarantine employees attached to the fumigation division do a considerable amount of trapping, with the result that each man acquired a fair amount of experience in this kind of work. This factor was very helpful in organizing the typhus-fever survey conducted with the aid of the Civil Works Administration, as each one of the experienced quarantine employees was used as an instructor.

The method of collecting fleas was to chloroform each rat and comb it with a white fine-toothed comb, over a white, well illuminated surface. The fleas found in the bags were difficult to manage, as they were not chloroformed at the time the rats were killed. For this reason, after moving the laboratory from the warehouse to a Government reservation, the entire unit, consisting of cage-trap in its protective bag and its unmolested catch, was placed in a suitable box into which a relatively large dose of hydrocyanic acid gas was liberated. In this manner the fleas from the bag would be as readily handled as those combed from the rats. In some instances, rats found dead, but not cold, were placed in paper bags and the fleas were recovered from them.

In this survey the *Xenopsylla cheopis* was found to be essentially a rat-nest parasite. A large number of them were found on young rats and rats in the proximity of nests. This habit of *X. cheopis* probably accounts for the fact that rats caught in a sheltered place had many fleas of this species, while rats caught a few hundred feet away had no such fleas.

All the fleas collected in this survey were put in vials containing alcohol and sent to the quarantine station at the Port of New York for identification, and these identifications form the basis of the data presented in this report.

DISTRIBUTION OF RATS

On the Philadelphia waterfront there are three sites where the rodents were found to be very prevalent. The local health authorities have made an effort to correct this condition through a resolution requiring rat-control measures. This resolution has served its purpose in one instance in that a chicken market, which was formerly a prolific source of the rodent population, was reconstructed of concrete and rat-proofed by filling certain spaces with concrete, removing wooden shelves, and installing metal sheathing wherever necessary to prevent the corners from being gnawed by the rats.

Prior to the rat-proofing of these premises, 24 rats were trapped there during the month of July 1932, from which 325 *X. cheopis* were collected. After the rat-proofing work had been completed, occasionally a stray rat, containing very few fleas, was trapped in these premises.

A short distance from the market mentioned above is a fertilizer plant at which cargoes of bones from Rosario, Argentina, were discharged at the plant's pier. So far, the vessels engaged in this traffic have been notorious for the lack of rat-proofing. Moreover, a fumigation before discharge of such cargo is probably less effective than after discharge, as the bones completely fill the holds and are also piled on deck. Traps have been set on these vessels after fumigation

before unloading the cargo, and rats were caught. These rats showed no signs of plague nor did they have any *X. cheopis*.

Another heavily rat-infested area consisted of two city blocks occupied by old houses used as storage space and for the slaughtering of poultry. These buildings, which were formerly residences, were in

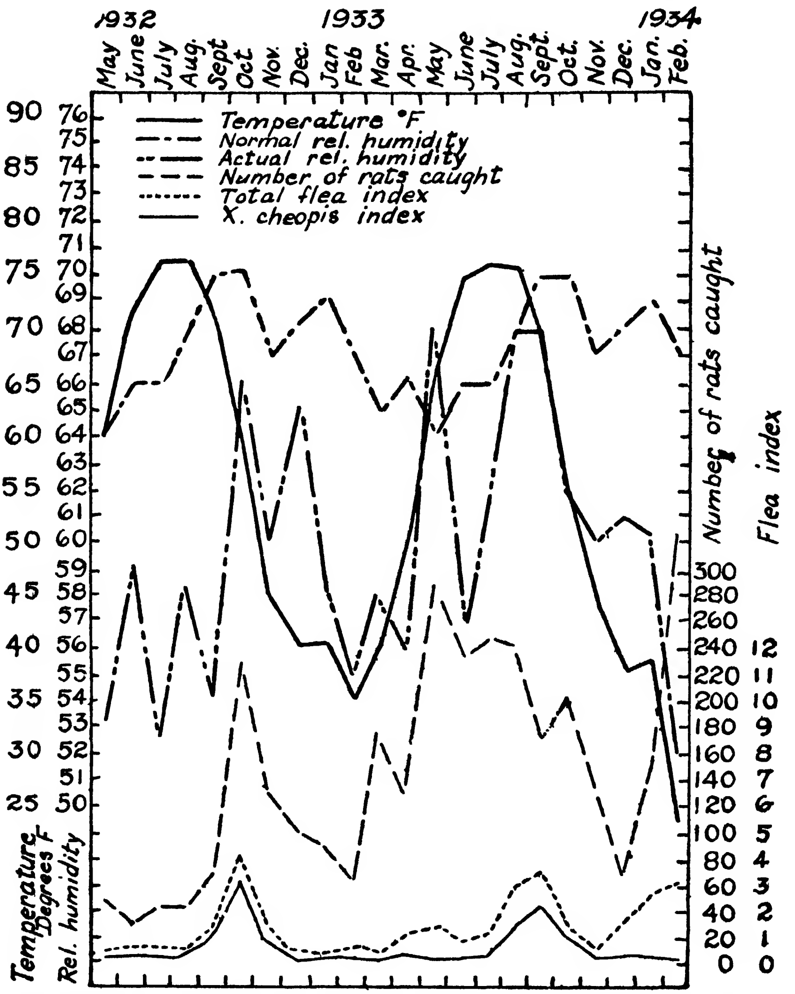

FIGURE 1.—Graphs presenting survey data. (Because of the unusual conditions obtaining in July 1932 the data for the total flea and *X. cheopis* indexes for that month are not plotted on the chart.)

a very insanitary condition. The cellars in most cases lacked concrete floors and were used to store live chickens in crates. The first floor was used as a sales and administration room and the second and third floors for empty crates and chicken food. In three of these buildings the first floor was used as a slaughterhouse, where it was a

common thing to see rats carry away the discarded parts of dead poultry. This location accounted for most of the *X. cheopis* found in this area.

The survey area also included two grain elevators. These, due to their modern construction and periodical rat exterminating operations, were fairly free from rats.

The piers of the port of Philadelphia extend straight outward from the shore toward the center of the river, and both sides of these are used to load and unload freight into vessels moored alongside. It has been observed that this type of pier offers much less shelter to rats than the type extending parallel with the course of the river. Most of the piers are of recent construction and are well lighted. Ocean traffic and railroad traffic contribute to make these piers quite active and noisy, and all these circumstances are unfavorable to rat infestation. Therefore, few rats were found, and these had very few fleas.

During the time of the survey (from May 3, 1932, to December 22, 1933) 28,321 trap-days were recorded, and 2,765 rats caught, or 9.8 rats per hundred trap-days. Of these rats, all but three were *Rattus norvegicus*. Of this number 1,006 were found to have 4,629 fleas.

The accompanying graphs show the relative humidity, temperature, rat catch, and fleas recovered, by months.

TABLE 1.—*Summary of data of the rat-flea and typhus-fever surveys*

Month	Number of rats caught	Number of rats with fleas	X. cheopis	C. fasciatus	C. canis or felis	L. musculi	E. gallinacea	Total number of fleas caught	Total flea index	C. fasciatus index	X. cheopis index
	RAT-FLEA SURVEY										
1932											
May	58	11	13	18	-	-	1	32	0.55	0.31	0.24
June	36	13	16	8	-	-	-	24	.67	.22	.45
July [1]	45	28	365	50	-	-	-	415	9.22	1.11	8.11
August	40	11	9	7	1	-	-	17	.43	.20	.23
September	74	28	76	36	-	-	-	112	1.50	.50	1.00
October	235	148	838	158	2	-	-	998	4.25	.67	3.58
November	128	46	152	24	-	-	-	176	1.38	.19	1.20
December	105	33	31	26	-	-	-	57	.55	.25	.20
1933											
January	93	19	55	11	-	-	-	66	.70	.12	.58
February	61	18	38	18	-	4	-	60	.94	.28	.60
March	177	50	5	68	1	2	1	77	.42	.39	.03
April	130	51	34	107	-	-	-	141	1.08	.82	.26
May	296	137	-	386	4	1	-	391	1.32	1.31	.00
June	238	63	23	120	3	2	12	160	.67	.50	.09
July	252	91	62	60	24	1	37	184	.73	.24	.25
August	245	87	113	44	58	6	37	258	1.05	.18	.46
September	155	71	295	120	17	14	17	463	2.99	.77	1.90
October	185	89	509	159	-	8	-	676	3.65	.86	2.75
November	137	51	139	44	-	16	-	199	1.45	.32	1.00
December	76	11	26	14	-	-	-	40	.51	.19	.34
	TYPHUS-FEVER SURVEY (C. W. A.)										
1934											
January	154	36	-	-	-	-	-	195	1.25	-	-
February	328	85	-	-	-	-	-	306	.93	-	-

[1] The figures representing the number of fleas caught and the flea indexes for July are unusually high on account of unusual conditions, as explained in the text.

RATS AND FLEAS BY MONTHS

The important prevalence of *Xenopsylla cheopis* appears to be through the months of September, October, and November. The extremely high *Xenopsylla cheopis* index (8.11) recorded in July 1932 was due to the fleas found on rats in the poultry market mentioned previously in this report. Such condition is not apt to recur.

SUMMARY

(1) A rat-flea survey conducted in the Port of Philadelphia from May 3, 1932, to December 22, 1933, resulted in the capture of 2,765 rats, from which 4,629 fleas were taken.

(2) Of this number of fleas, 2,799 or 60 percent were *Xenopsylla cheopis;* 1,472 or 32 percent were *Ceratophyllus fasciatus;* 110 or 2.6 percent were *Ctenocephalus canis* (or *felis*); 54 were *Leptopsylla musculi;* and 110 were *Echidnophaga gallinacea.*

(3) Excluding the July (1932) data from the above figures, because of the undue weight they would give, due to unusual conditions obtaining, the total flea index for the entire period is 1.55 and the *X. cheopis* index is 0.90.

(4) *Rattus norvegicus* was practically the only species of rat encountered.

(5) The *cheopis* index was found to follow fairly closely the seasonal curve of relative humidity and temperature.

(6) The higher *cheopis* index in the autumn months (September, October, November) seems to indicate a favorable opportunity for spread of plague infection if introduced during those months, while the marked diminution of fleas during the other months indicates a lessened susceptibility to infection in the port.

CONCLUSIONS

The Port of Philadelphia receives a considerable number of vessels from plague-infected ports. Many of these vessels are not ratproof and are laden with rat-attractive cargo; therefore, it is important to keep the piers and water front in a ratproof condition.

ACKNOWLEDGMENTS

The survey herein reported has been facilitated by the Health Department of Philadelphia, the housing and sanitation division of this department having cooperated in every way with the Service. The United States Weather Bureau furnished the meteorological data and the United States Quarantine Station, Rosebank, Staten Island, made all identifications of fleas.

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DEATHS DURING WEEK ENDED JULY 6, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended July 6, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,335	7,774
Deaths per 1,000 population, annual basis	10.2	10.8
Deaths under 1 year of age	478	520
Deaths under 1 year of age per 1,000 estimated live births	44	48
Deaths per 1,000 population, annual basis, first 27 weeks of year	12.1	12.0
Data from industrial insurance companies:		
Policies in force	67,920,275	67,746,836
Number of death claims	9,311	9,050
Death claims per 1,000 policies in force, annual rate	7.1	7.0
Death claims per 1,000 policies, first 27 weeks of year, annual rate	10.3	10.5

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 13, 1935, and July 14, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 13, 1935, and July 14, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934
New England States:								
Maine	1				211	80	1	0
New Hampshire					1	50	0	0
Vermont					37	29	0	0
Massachusetts	9	9			195	234	3	0
Rhode Island	2	2			123	16	0	0
Connecticut	9		1	3	167	65	0	1
Middle Atlantic States:								
New York	29	[illegible]	[1] 3	[1] 3	1,382	457	10	2
New Jersey	9	12	2	1	557	212	2	1
Pennsylvania	17	34			514	697	1	1
East North Central States:								
Ohio	16	13	7	12	727	604	10	4
Indiana	9	7	8	11	27	69	2	0
Illinois	26	33	18	7	414	454	12	4
Michigan	11	5			697	106	3	0
Wisconsin	3	5	17	2	739	569	4	0
West North Central States:								
Minnesota	4	14	1		68	23	1	0
Iowa [2]	4	4			15	45	2	1
Missouri	19	12	27	3	35	47	1	2
North Dakota	1		9	2	8	28	1	0
South Dakota	6	1			8	8	0	0
Nebraska	2	5			25	25	0	0
Kansas	6	8	8		51	52	2	0
South Atlantic States:								
Delaware	2				19	7	0	0
Maryland [2 3]	10	4			17	88	4	0
District of Columbia	15	1			10	7	1	0
Virginia [2]	6	10			60	151	5	1
West Virginia	12	9	16		28	63	1	0
North Carolina [2 4]	13	10		1	22	120	2	0
South Carolina [4]		2	35	46	8	36	1	0
Georgia [4]	9	4					0	0
Florida [4]	3	1	1		2	55	0	0
East South Central States:								
Kentucky	5	7	4	5	40	73	1	0
Tennessee	3	3	5	2	4	19	2	0
Alabama [4]	19	10	15	1	10	34	6	0
Mississippi [3]	2	4					1	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 13, 1935, and July 14, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934
West South Central States:								
Arkansas	1		3	2	4		2	0
Louisiana [4]	25	9	10	10	15	47	1	1
Oklahoma [5]	3	2	5	11	3	8	0	0
Texas [4]	20	54	6	55	16	127	2	1
Mountain States:								
Montana [2]	6	8	2		35	13	0	0
Idaho					3		0	1
Wyoming		2			2	38	0	0
Colorado	3	ʞ			20	107	3	0
New Mexico	2	3		1	3	8	2	0
Arizona	1				4	7	0	0
Utah [3]						5	0	0
Pacific States:								
Washington	1				116	45	0	0
Oregon [2]	1	2	4	10	41	17	1	0
California	20	36	25	15	418	243	3	1
Total	365	375	232	203	6,896	5,188	87	22
First 28 weeks of year	16,243	18,535	102,780	47,014	682,857	656,834	3,795	1,435

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934
New Englan : States:								
Maine	0	1	8	11	0	0	1	1
New Hampshire	0	1	8	1	0	0	0	1
Vermont	0	0	2	8	0	0	1	0
Massachusetts	3	5	74	60	0	0	4	7
Rhode Island	1	1	6	2	0	0	1	0
Connecticut	2	1	33	12	0	0	0	1
Middle Atlantic States:								
New York	18	9	228	167	0	0	16	11
New Jersey	4	4	57	81	0	0	1	10
Pennsylvania	0	2	144	125	0	0	68	21
East North Central States:								
Ohio	0	2	129	146	0	0	14	9
Indiana	0	0	26	29	2	1	1	9
Illinois	5	5	213	139	0	1	24	32
Michigan	1	3	61	137	1	0	11	9
Wisconsin	2	1	142	61	16	4	1	2
West North Central States:								
Minnesota	0	1	72	21	6	2	47	1
Iowa [3]	0	1	15	19	5	1	1	8
Missouri	1	0	10	17	0	0	21	28
North Dakota	0	0	10	1	0	0	0	0
South Dakota	0	0	2	2	9	1	0	0
Nebraska	0	0	3	3	7	6	1	0
Kansas	0	3	27	5	9	0	4	6
South Atlantic States:								
Delaware	0	0		2	0	0	0	2
Maryland [2] [3]	0	0	40	16	0	0	12	8
District of Columbia	3	0	7	3	0	0	1	0
Virginia [3]	45	2	6	17	1	0	17	17
West Virginia	0	2	12	18	0	0	21	11
North Carolina [3] [4]	52	3	15	8	0	0	43	36
South Carolina [4]	3	0	2		0	0	33	39
Georgia [4]	0	1	1	5	0	1	37	65
Florida [4]	0	1		1	0	0	4	2
East South Central States:								
Kentucky	0	1	19	16	0	1	31	45
Tennessee	11	1	10	5	0	0	42	51
Alabama [4]	6	1	11	6	0	1	28	24
Mississippi [3]	1	2	0	8	0	0	6	25

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 13, 1935, and July 14, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934	Week ended July 13, 1935	Week ended July 14, 1934
West South Central States:								
Arkansas	0	0	11		0	1	23	17
Louisiana [4]	3	1	3	10	0	0	25	21
Oklahoma [5]	0	0	11	6	1	0	14	50
Texas [4]	1	2	11	32	0	2	28	109
Mountain States:								
Montana [2]	0	1	2	1	1	0	1	2
Idaho	0	2	2	1	0	0	4	0
Wyoming	0	0	5	1	3	3	0	1
Colorado	0	0	42	16	3	1	2	3
New Mexico	0	0	8	5	0	0	11	10
Arizona	0	2	7	4	0	0	7	2
Utah [3]	0	0	23	3	0	0	0	0
Pacific States								
Washington	0	8	30	14	29	1	1	5
Oregon [2]	0	2	19	19	9	0	1	2
California	29	207	80	99	3	3	5	5
Total	191	279	1,656	1,308	105	80	614	703
First 28 weeks of year	1,372	2,694	175,080	143,251	5,081	3,610	5,624	6,426

[1] New York City only

[2] Rocky Mountain spotted fever, week ended July 13, 1935, 18 cases, as follows Iowa, 1, Maryland, 3; Virginia, 2, North Carolina, 2 Montana, 8 Oregon, 2

[3] Week ended earlier than Saturday

[4] Typhus fever, week ended July 13, 1935, 38 cases, as follows: North Carolina, 1; South Carolina, 1; Georgia, 14, Florida, 1, Alabama, 12, Louisiana, 1, Texas, 8.

[5] Exclusive of Oklahoma City and Tulsa

SUMMARY OF MONTHLY REPORTS FROM STATES

The following reports of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May 1935										
Tennessee	25	36	93	119	195	17	2	65	1	16
June 1935										
District of Columbia	28	39	3		91		0	73	0	4
Maine		4	2		1,039		1	69	0	13
Missouri	84	105	218	99	1,007	1	1	174	9	55
Nebraska	5	31	1		728		0	132	167	13
New Jersey	14	56	14	1	6,611		5	441	0	13
Vermont		3			179		0	22	0	2
Wyoming			1		115		0	63	64	0

May 1935

Tennessee:	Cases
Chicken pox	114
Dysentery	8
Epidemic encephalitis	1
German measles	16
Hookworm disease	2
Mumps	201
Paratyphoid fever	3
Scabies	2
Septic sore throat	2
Trachoma	38
Tularaemia	3
Undulant fever	1
Vincent's infection	7
Whooping cough	246

June 1935

	Cases
Chicken pox:	
District of Columbia	65
Maine	146
Missouri	171
Nebraska	102
New Jersey	1,176
Vermont	169
Wyoming	32
Dysentery:	
Missouri	20
Epidemic encephalitis:	
District of Columbia	1
Maine	1
Missouri	4
New Jersey	2

June 1935—Continued

	Cases
German measles:	
Maine	625
New Jersey	2,409
Vermont	1,292
Lead poisoning:	
New Jersey	1
Mumps:	
Maine	80
Missouri	372
Nebraska	112
New Jersey	639
Vermont	24
Wyoming	9
Ophthalmia neonatorum:	
Missouri	1
New Jersey	6
Paratyphoid fever:	
New Jersey	1
Rabies in animals:	
Missouri	8
New Jersey	11
Rocky Mountain spotted fever:	
District of Columbia	4
Wyoming	41
Septic sore throat:	
Maine	1
Missouri	31
Wyoming	8

June 1935—Continued

	Cases
Tetanus:	
Maine	2
Missouri	2
New Jersey	2
Trachoma:	
Missouri	94
New Jersey	1
Tularaemia:	
District of Columbia	1
Missouri	2
Typhus fever:	
New Jersey	1
Undulant fever:	
Maine	3
Missouri	6
New Jersey	1
Vermont	2
Vincent's infection:	
Maine	3
Whooping cough:	
District of Columbia	11
Maine	48
Missouri	277
Nebraska	18
New Jersey	1,200
Vermont	90
Wyoming	35

CASES OF VENEREAL DISEASES REPORTED FOR MAY 1935

This statement is published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State health officers. They are preliminary and are, therefore, subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	758	2.81	371	1.38
Arizona	67	1.48	156	3.44
Arkansas	445	2.38	269	1.44
California	1,545	2.55	1,395	2.30
Colorado [1]				
Connecticut [2]	239	1.45	134	.81
Delaware	132	5.48	30	1.24
District of Columbia	124	2.51	105	2.12
Florida	519	3.34	97	.62
Georgia	1,195	4.11	558	1.92
Idaho	0	0	0	0
Illinois	1,260	1.61	1,093	1.40
Indiana	198	.60	118	.36
Iowa [2]	143	.58	152	.61
Kansas	146	.77	91	.48
Kentucky	233	.88	272	1.03
Louisiana	177	.82	100	.46
Maine	35	.44	43	.54
Maryland	665	4.00	220	1.32
Massachusetts	399	.93	524	1.21
Michigan	663	1.31	432	.86
Minnesota	405	1.56	289	1.11
Mississippi	1,192	5.82	1,804	8.81
Missouri	691	1.88	297	.81
Montana [2]	54	1.00	34	.63
Nebraska	27	.19	56	.40
Nevada [1]				
New Hampshire	10	.21	15	.32
New Jersey	571	1.36	249	.59
New Mexico [2]	40	.92	25	.58
New York [2]	4,416	3.41	1,038	.80
North Carolina	1,289	3.94	388	1.18
North Dakota	17	.25	33	.48

[1] Not reporting. [2] Incomplete.

Cases of venereal diseases reported for May 1935—Continued

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Ohio [3]	634	.93	255	.38
Oklahoma [2]	141	.68	138	.66
Oregon	103	1.05	102	1.04
Pennsylvania	317	.32	214	.22
Rhode Island	72	1.03	40	.57
South Carolina [2]	245	1.40	325	1.80
South Dakota	6	.09	38	.54
Tennessee	965	3.62	334	1.25
Texas	313	.52	98	.16
Utah [1]				
Vermont	17	.47	25	.69
Virginia	535	2.19	321	1.32
Washington	189	1.18	169	1.06
West Virginia	305	1.72	134	.76
Wisconsin [2]	14	.05	140	.47
Wyoming [1]				
Total	25,511	2.07	12,721	1.03

[1] Not reporting.
[2] Incomplete.
[3] Only cases of syphilis in the infectious stage are reported.

NOTE.—Surveys in which all medical sources have been contacted in representative communities throughout the United States have revealed that the monthly rate per 10,000 population is 6.6 for syphilis and 10.2 for gonorrhea.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 6, 1935

This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine.											
Portland	0		0	1	1	1	0	0	0	0	17
New Hampshire:											
Concord	0		0	0	0	1	0	0	0	0	14
Nashua	1			0		0	0		0	0	
Vermont:											
Burlington	0			0		0	0		0	0	9
Rutland	0		0	0	1	1	0	0	0	2	9
Massachusetts.											
Boston	5		1	22	3	34	0	11	1	11	180
Fall River	0		0	0	1	5	0	3	0	0	19
Springfield	0		0	4	2	0	0	1	0	0	34
Worcester	0		0	1	1	10	0	1	1	0	37
Rhode Island:											
Pawtucket	0			0		0	0		0	0	14
Providence	0		0	153	6	1	0	2	0	21	40
Connecticut:											
Bridgeport	0		0	11	1	2	0	0	0	1	32
Hartford	0		0	2	1	2	0	2	0	3	30
New Haven	0		0	9	3	0	0	0	0	0	21
New York:											
Buffalo	0		0	12	9	14	0	8	0	17	144
New York	23		3	603	77	118	0	82	6	122	1,238
Rochester	1		0	11	4	3	0	0	0	7	54
Syracuse	0		0	187	2	12	0	1	0	5	50
New Jersey:											
Camden	1		1	0	1	3	0	1	0	4	24
Newark	0		0	107	3	6	0	6	0	43	91
Trenton	0		0	0	[illegible]	2	0	[illegible]	0	1	[illegible]

City reports for week ended July 6, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Pennsylvania:											
Philadelphia	3	-	0	32	14	31	0	25	19	62	408
Pittsburgh	1	3	1	33	10	32	0	5	0	29	152
Reading	0	-	0	28	0	1	0	0	1	2	33
Scranton	0	-	-	3	-	1	0	-	0	2	-
Ohio:											
Cincinnati	0	-	1	9	5	6	0	8	1	4	116
Cleveland	3	-	0	197	14	14	0	16	1	35	198
Columbus	0	-	0	13	1	5	0	3	0	0	78
Toledo	0	-	0	34	2	3	0	5	0	20	57
Indiana:											
Anderson	0	-	0	0	1	0	0	0	0	5	9
Fort Wayne	2	-	0	0	3	0	1	1	0	1	21
Indianapolis	2	-	0	14	8	1	0	3	0	20	101
South Bend	0	-	0	0	1	1	0	0	0	2	15
Terre Haute	1	-	0	0	0	0	0	0	0	0	15
Illinois:											
Alton	1	-	0	0	1	0	0	1	0	0	7
Chicago	21	2	4	234	41	143	0	39	0	102	631
Elgin	0	-	0	1	1	3	0	0	0	7	8
Moline	0	-	0	0	0	0	0	0	0	4	7
Springfield	0	-	0	1	0	1	0	0	0	7	21
Michigan:											
Detroit	4	-	1	170	15	11	0	17	0	149	277
Flint	0	-	0	1	1	4	0	0	0	14	17
Grand Rapids	0	-	0	18	1	8	0	1	1	23	25
Wisconsin:											
Kenosha	0	-	0	4	0	1	0	0	0	4	11
Milwaukee	0	-	0	333	6	31	0	4	0	30	95
Racine	0	-	0	67	0	12	0	0	0	19	8
Superior	0	-	0	6	0	2	0	0	0	1	12
Minnesota:											
Duluth	0	-	0	2	0	8	0	1	0	3	21
Minneapolis	0	-	0	16	0	23	1	0	17	4	90
St. Paul	0	-	0	16	5	6	0	1	2	1	60
Iowa:											
Cedar Rapids	0	-	-	2	-	0	0	-	0	4	-
Davenport	0	-	-	1	-	0	0	-	0	0	-
Des Moines	2	-	0	0	0	0	0	0	0	0	22
Sioux City	0	-	0	5	0	0	0	0	0	8	0
Waterloo	2	-	-	1	-	2	0	-	0	0	-
Missouri:											
Kansas City	0	-	0	0	4	2	0	6	1	1	90'
St. Joseph	1	-	0	2	1	0	1	1	0	1	13
St. Louis	7	-	0	10	4	5	0	6	0	8	178
North Dakota:											
Fargo	0	-	0	0	0	1	0	0	0	5	6
Grand Forks	0	-	-	0	-	0	0	-	0	0	-
Minot	0	-	-	0	-	0	0	-	0	0	7
South Dakota:											
Aberdeen	0	-	-	0	-	0	0	-	0	2	-
Nebraska:											
Omaha	1	-	0	3	6	3	1	4	0	0	60
Kansas:											
Lawrence	0	-	0	0	0	0	0	0	0	0	2
Topeka	0	-	0	3	0	0	0	0	0	14	7
Wichita	0	-	0	1	2	2	0	0	1	2	27
Delaware:											
Wilmington	0	-	0	1	2	0	0	0	0	0	22
Maryland:											
Baltimore	4	-	0	4	11	11	0	20	1	34	195
Cumberland	0	-	0	2	0	1	0	0	0	0	11
Frederick	0	-	0	0	0	0	0	0	0	0	4
District of Columbia:											
Washington	7	1	0	20	9	12	0	8	0	6	161
Virginia:											
Lynchburg	1	-	0	0	0	1	0	0	1	29	13
Norfolk	0	-	0	0	3	0	0	1	0	0	31
Richmond	0	-	0	3	1	0	0	4	1	0	45
Roanoke	0	-	0	1	0	1	0	0	0	1	20
West Virginia:											
Charleston	0	-	0	0	0	0	0	2	0	0	38
Huntington	1	-	-	0	-	0	0	-	1	1	-
Wheeling	0	-	0	12	1	0	0	0	0	9	20

City reports for week ended July 6, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
North Carolina:											
Gastonia	0	------	0	0	0	1	0	0	0	0	3
Raleigh	1	------	0	1	1	0	0	1	0	4	8
Wilmington	0	------	0	0	1	1	0	0	0	5	7
Winston-Salem	0	------	0	0	2	0	0	0	0	5	12
South Carolina:											
Charleston	0	------	0	0	2	1	0	1	0	0	30
Columbia	0	------	0	0	0	0	0	0	0	0	8
Florence	0	------	0	0	0	0	0	0	0	1	6
Georgia:											
Atlanta	2	------	0	1	4	0	0	5	0	3	90
Brunswick	0	------	0	0	0	0	0	0	0	1	1
Savannah	0	1	0	0	0	0	0	4	0	2	32
Florida:											
Miami	0	------	0	1	0	0	0	1	0	4	26
Tampa	0	1	0	0	0	0	0	2	4	0	23
Kentucky:											
Ashland	------	------	------	------	------	------	------	------	------	------	------
Covington	0	------	0	0	2	1	0	1	0	1	13
Lexington	0	------	0	5	2	0	0	3	0	0	15
Louisville	0	1	0	14	6	4	0	1	1	15	61
Tennessee:											
Knoxville	0	1	0	0	2	0	0	2	0	0	44
Memphis	0	------	0	0	2	2	0	8	4	15	62
Nashville	0	------	0	0	1	1	0	0	5	18	52
Alabama:											
Birmingham	0	1	0	8	0	1	0	5	3	4	58
Mobile	1	------	0	1	2	1	0	0	0	0	25
Montgomery	1	------	0	0	------	0	0	------	0	0	------
Arkansas:											
Fort Smith	0	------	------	0	------	3	0	------	1	0	------
Little Rock	0	------	0	0	1	3	0	2	1	0	3
Louisiana:											
New Orleans	0	------	2	3	17	0	0	9	1	0	141
Shreveport	2	------	0	0	9	0	0	2	0	1	48
Texas:											
Dallas	2	------	0	0	2	1	0	1	0	0	54
Fort Worth	0	------	0	0	3	0	0	2	1	0	39
Galveston	0	------	0	0	3	0	0	0	0	0	16
Houston	4	------	0	1	6	1	0	6	0	0	65
Montana:											
Billings	0	------	0	0	0	1	0	1	1	0	6
Great Falls	0	------	0	0	1	0	0	0	0	5	9
Helena	0	------	0	0	1	0	0	0	0	0	7
Missoula	0	------	0	0	2	0	0	0	0	0	9
Idaho:											
Boise	0	------	0	2	0	0	0	1	0	1	2
Colorado:											
Colorado Springs	0	------	0	0	0	6	0	1	0	3	14
Denver	5	------	0	38	3	14	0	3	2	1	67
Pueblo	0	------	0	3	1	5	0	0	0	0	8
New Mexico:											
Albuquerque	0	------	0	1	0	1	0	3	0	0	13
Utah:											
Salt Lake City	0	------	0	3	1	30	0	0	0	58	40
Nevada:											
Reno	0	------	0	1	0	1	0	1	0	0	6
Washington:											
Seattle	0	------	0	75	3	5	0	2	0	3	67
Spokane	0	------	0	3	2	4	0	0	0	4	23
Oregon:											
Portland	0	1	0	17	5	4	0	4	0	0	78
Salem	0	------	------	0	------	0	0	------	0	0	------
California:											
Los Angeles	6	10	0	28	6	16	1	7	0	17	259
Sacramento	4	------	0	29	2	12	0	4	0	0	24
San Francisco	2	------	1	45	4	11	0	5	0	34	130

City reports for week ended July 6, 1935—Continued

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Polio-myelitis cases	State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Polio-myelitis cases
New York:				District of Columbia:			
New York	10	4	7	Washington	2	2	0
Pennsylvania:				Virginia:			
Philadelphia	2	2	0	Norfolk	0	0	1
Pittsburgh	1	1	0	Richmond	0	0	6
Ohio:				North Carolina:			
Cleveland	3	3	0	Raleigh	0	0	1
Illinois:				Wilmington	0	0	1
Chicago	7	3	0	Florida:			
Wisconsin:				Miami	0	0	1
Racine	0	0	1	Tennessee:			
Minnesota:				Memphis	1	1	0
Duluth	0	0	1	Louisiana:			
Minneapolis	0	1	0	New Orleans	0	1	0
Iowa:				Colorado:			
Sioux City	1	0	0	Denver	1	0	0
Missouri:				Washington:			
Kansas City	1	0	0	Seattle	0	1	0
St. Louis	1	0	0	Oregon:			
Kansas:				Portland	1	0	0
Wichita	1	1	0	California:			
Maryland:				Los Angeles	0	1	11
Baltimore	2	0	1				

Epidemic encephalitis.—Cases: New York, 2; Pittsburgh, 1; Detroit, 1; Charleston, S. C., 1; Lexington, 1; Houston, 1.
Pellagra.—Cases: Philadelphia, 1; Kansas City, Mo., 1; Winston-Salem, 1; Charleston, S. C., 1; Savannah, 4; Atlanta, 1; Montgomery, 2.
Typhus fever.—Cases: Atlanta, 2; Savannah, 1; Montgomery, 1.

FOREIGN AND INSULAR

CUBA

Provinces—Notifiable diseases—4 weeks ended June 29, 1935.—During the 4 weeks ended June 29, 1935, cases of certain notifiable diseases were reported in the Provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer				6	3		9
Chicken pox				2		6	8
Diphtheria			2	1	1		4
Hookworm disease	1			12			13
Leprosy				1	1	7	9
Malaria	124	1	48	156	106	168	603
Measles	12	2	87	16		1	118
Poliomyelitis			1	3	3		7
Tuberculosis	3	4	9	20	13	17	66
Typhoid fever		11	8	37	53	9	118

GERMANY

Vital statistics—1934 Comparative. Following are vital statistics for Germany for the year 1934 compared with 1933:

	1934	1933		1934	1933
Number of marriages	731,431	631,152	Total deaths	716,865	729,501
Number of live births	1,181,179	956,974	Deaths per 1,000 inhabitants	10.9	11.2
Live births per 1,000 inhabitants	18.0	14.7	Deaths under 1 year	77,380	73,283
Number of stillbirths	31,830	28,036	Death under 1 year per 100 live births	6.6	7.6

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Nov. 25–Dec. 29, 1934	Dec. 30, 1934–Jan 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Week ended— April 1935				May 1935				June 1935				
						6	13	20	27	4	11	18	25	1	8	15	22	29
Ceylon:																		
Colombo	C			22	5													
	D			17	3													
Peliyagoda	C			22														
	D			17														
China:																		
Canton	C											1						
Swatow	C											1	1					
India	C	17,836	16,371	14,613	20,283	5,565	6,019	5,949	5,571	4,880	4,895	4,996						
	D	8,452	8,582	7,696	10,234	2,942	3,163	3,410	3,145	2,688	2,585	2,820						
Assam	C	645	874	127	330	354	435	633	616	569	543	631	662	398	412	242	111	49
	D	274	419	82	169	157	270	361	416	387	295	380	403	209	232	122	77	23
Bassein	C	15	8	6	4	1	3	2	15	15	5	2			3			[1] 1
	D	9	9	4	2	1	3	1	9	12	6	2			1			
Bombay Presidency	C	592	90	150	234	31	13	51	51	96	69	17	50	49	53			
	D	256	45	59	98	11	8	29	18	39	39	11	18	19	21			
Bombay	C				6				1									
Calcutta	C	166	174	444	338	151	163	206	262	186	256	190	193	101	104	146	149	
Chittagong	C	12		4	14	7		9	3	6	6	18	4	3	12	4	4	6
Madras Presidency	C	5,157	7,693	6,473	3,738	818	513	596	505	417	455	284						
	D	2,469	4,115	3,340	1,927	403	292	271	249	235	235	159						
Madras	C	28	25	6	3		1		1						2	3	6	
	D	12	17	3	1											2	2	
Porto Novo	C	P																
Mergui	C			2														
Moulmein	C		1	26	8		4	[1] 2					1			13	1	4
Negapatam	C		12	2	14	3	5		2									
Punjab	C										P	3	2	2	31	19	9	
Rangoon	C	1	21	34	9	7	3	3	3	1	5	2	3		2	2	2	
Tuticorin	C		1		1	18		14	5	2	4							

[1] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov 25–Dec 29, 1934	Dec. 30, 1934–Jan 26, 1935	Jan. 27–Feb 23, 1935	Feb. 24–Mar. 30, 1935	Week ended— April 1935 6	13	20	27	May 1935 4	11	18	25	June 1935 1	8	15	22	29
India (French):																		
Chandernagor	C				17	14	34	10	4	4	2	2	7	2				
Karikal	C	11	55	28	17			1										
Pondichery	C	29	50	27	9	2		1	9	11	14	6		6				
India (Portuguese)	C	10																
Indo-China (see also table below):																		
Kandal	C		2															
Pnom-Penh	C	2		1	1											1		
Varela	C														1			
Philippine Islands Rizal Province	C																2	1
	D																	1
Siam:																		
Bangkok	C				1													
Nagara Rajsima—Roy Ech	C				13													
	D				2													
On vessels:																		
S. S. *Ellenga* at Rangoon from Calcutta	C		1															
S. S. *Tilawa* at Cocanada	C			[2] 1														
S. S *Egra* at Rangoon	C		[2] 1															
S. S *Santhia* at Rangoon from Calcutta	C			1														
S. S. *Incomati* at Colombo	C				1													
	D				1													
S. S. *Pasha* at Rangoon from Moulmein	C				1													
S. S. *Khandalla* at Rangoon	C				1													
S. S. *Juna* at Moulmein from Mergui	C				1													
S. S. *Karoa* at Rangoon	C				1													
S. S. *Ethiopa* at Madras from Rangoon	C							1										
	D							1										

S. S *Ellenga* at Rangoon C	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
S. S. *Bodnant* at Calcutta C	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
S. S. *Baron Napier* at Calcutta C	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-

[2] Suspected.

Place		February 1935			March 1935			April 1935			May 1935			June 1935
		1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10
Indo-China (French) (see also table above):														
Cambodia [3]	C	1	3	-	3	-	1	1	1	2	17	8	1	-
	D	1	3	-	3	-	1	1	1	2	12	5	-	-
Cochin-China [3]	C	-	2	-	2	1	1	1	1	1	3	-	5	1
	D	-	1	-	2	1	1	1	1	1	2	-	4	-

[3] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 25–Dec. 29, 1934	Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Week ended— April 1935				May 1935				June 1935				
						6	13	20	27	4	11	18	25	1	8	15	22	29
Indo-China (see also table below):																		
Bertre	C				1													
Kardal	C		1															
Longxuyen	C														1			
Pnom-Penh	C	2										1						
Saigon and Cholon	C									1							2	
Tanghai Island	C						12											
Tayninh	C														1			
Iraq:																		
Baghdad	C									1	2							
Baghdad Province	C									1								
Madagascar. (See table below.)																		
Morocco:																		
Draa boundaries—Tighmert.[9]																		
Saffi Region	C				9		7	4	3	1								
	D				5	2	5	2	2	1								
Peru. (See table below.)																		
Senegal. (See table below.)																		
Siam:																		
Prachin—Nagara Nayok	C	4																
Nagara Rajsima	C			1														
Rajpuri	C		1		1													
South-West Africa. (See table below.)																		
Tunisia: Tunis	C																1	
	D																1	
Plague-infected rats				1								2			2			
Union of South Africa:																		
Cape Province	C		3	3	5			1	3	11	6							
Orange Free State	C	3		39	9	4	6	10	19	4	2							
Transvaal	C				23	2		[illegible]			1							

United States:																	
California—Plague-infected ground squirrels—																	
Lassen County																	1
Modoc County								3	9	11	5	[10] 1	32	7	13	13	
San Luis Obispo County								1				[11] 1					
Oregon—Lake County—Plague-infected ground squirrels										1		1					

[9] During the week ended July 6, 1935, 6 cases of plague were reported at Tighmert, Draa boundaries, Morocco.
[10] Plague-infected mouse.
[11] Plague-infected wood rat.

Place		December 1934	January 1935	February 1935	March 1935	April 1935	May 1935
Argentina (see also table above): Santa Fe	C			1	1		
Azores	C	1	2	3			
Bolivia: Tomina Province	C		4	4	4		
China: Kwangchowan	C					20	7
	D					13	9
Ecuador:							
Chimborazo Province	C			4			
Loja Province	C			18	17	6	4
Indo-China (see also table above):							
Cambodia	D	2	1				
Cochin-China	C				1	2	1
Naotchao Island	C				20	18	
Madagascar (central region)	C	381	510	491	211	209	
	D	364	502	472	203	199	
Peru	C	5	5	15	14	13	10
Ancash Department	C		2				

Place		December 1934	January 1935	February 1935	March 1935	April 1935	May 1935
Lambayeque Department	C					1	1
Libertad Department	C			9	5		3
Lima Department	C	1	1	6	5	12	6
Callao	C			3	2		
	D			2	2		
Plague-infected rats				4		P	
Lima	C		2	3	2	9	6
	D				1	7	4
Plague-infected rats			5	5		P	
Senegal:							
Dakar [12]	C	2	2	1	2	5	10
	D	2	2	1	2	4	8
Louga [12]	C						1
Rufisque [12]	C		1			17	10
Theis [12]	C					3	19
Tivaouane [12]	C	1				5	30
South-West Africa. Ovamboland	C			[13] 88	29		

[12] Reports incomplete.
[13] For January and February.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Nov. 25–Dec. 29, 1934	Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar 30, 1935	Week ended— April 1935: 6	13	20	27	May 1935: 4	11	18	25	June 1935: 1	8	15	22	29
Algeria:																		
Algiers Department	C															1		
Constantine Department	C			1	2							1					2	
Belgian Congo (see also table below)	C		5															
Bolivia. (See table below)																		
Brazil:																		
Porto Alegre (alastrim)	C			4														
Recife	C	1																
Rio de Janeiro	C														1			
British East Africa:																		
Kenya	C	13								2								2
Tanganyika	C	63	2	3	26	3				3								
Uganda	C									1								
British Guiana	C									P								
British Somaliland	C		8	29	26	5	9	14	9	12	13		22	3	1			
British South Africa:																		
Northern Rhodesia	C			25	27						4							
Southern Rhodesia	C	1																
Canada:																		
Alberta	C	1																
Ontario	C			2		[1] 2								[1] 1				
Saskatchewan	C					[1] 1								[1] 1				
Canary Islands: Santa Cruz de Tenerife	C	3																
Ceylon:																		
Colombo	C	12	15	1						1			1					
Galle	C				14													
Welitara	C				50													
China:																		
Amoy	C		1		7	2		1	1					1	1			
Canton	C	9	7	6	12		1	1										
Dairen	C	2	4	1	4				4		6	9	6					
Foochow	C	P	P	P	P	P		P		P		P		P		P		
Hangchow	C				3	2						1		1	1			
Hankow	C	16	19	15	14	3	4	3	1	7	2	1	1	1				
Hong Kong	C	2	8	9	14	1	2	3	6	6	2	2				1		
Macao	D	43	47	53	23	1	1				1							

Nanking	C	1	1	1	[illegible]					1	1				1			
Shanghai	C	8		4	7	1		1	1	3		4	5			3	5	4
Swatow	C			1	2											1		
Tientsin	C	7	6	11	10	5	1	2				1	1	1	2			
Tsingtao	C	2	11	17	16	4	7		2	5	2	1	1	2	1			
Chosen. (See table below.)																		
Colombia	C		11	23	8	12	4	1	8	2	24			31				
Barranquilla	C									1								
Bogota	C									1	2							
Dahomey. (See table below.)																		
Dutch East Indies: Balei	C		4															
Egypt:																		
Dakahliya	C			87	4		2	15	3	13						2		
Gharbiya	C				3										1			
Suez	C				[2] 1													
Provinces	C	2	4	3	21						1				1			
Eritrea	C				5													
Formosa	C		P															
France. (See table below.)																		
French Somaliland	C		11	16	14	1												
Greece: Salonika	C		1	2	5	1					7	7						
Guatemala. (See table below.)																		
Honduras: Tela	C	7	2	8				6						P	P	4		
India	C	17,082	23,522	31,533	47,384	12,628	11,070	10,848	11,012	11,089	9,583	9,542						
	D	4,189	5,444	6,726	9,464	2,528	2,181	2,385	2,543	2,426	2,106	2,014						
Assam	C		27	27	47	13	4	4	11	10	6	6	34		24		3	1
Bassein	C		1							[2] 1								
	D		2															
Bombay Presidency	C	2,834	4,816	7,778	11,693	2,996	2,739	2,531	2,231	2,467	2,094	2,033	1,364	1,303	1,259			
	D	578	1,019	1,445	2,241	541	506	455	468	414	376	337	303	220	235			
Bombay	C	18	87	235	441	109	111	119	116	78	81	67	58	53	52	53	42	39
	D	11	41	114	262	61	65	59	72	44	46	41	45	37	29	39	24	30
Calcutta	C	51	79	170	429	125	52	104	152	68	81	62	35	41	33	17	21	
	D	32	52	103	241	110	43	69	104	58	57	48	25	34	30	15	15	
Chittagong	C			[2] 1	[2] 2													
Cochin	C		2	6	5	2												
Karachi	C	7	11	32	39	12	10	10	11	3	3	11	6	9	2	3	4	8
Madras Presidency	C	2,727	5,324	4,939	6,493	1,389	1,103	852	1,022	612	695	697						
	D	408	851	825	72	180	203	189	148	166	116	133						
Madras	C	19	36	48	49	15	18	5	9	6	5	5	6	4	5	4	11	
Moulmein	C			[2] 1	2								1			[2] 2		3
Negapatam	C	24	33	43	61	5	10	2	3	5	1	4	3	4	1	2	1	
Punjab	C	275	279	193	212	30	31	31	41	94	65	138	146	82	72	85	66	
Rangoon	C	3	24	77	216	35	15	25	20	26	16	10	7	5	7	3	3	7
Tuticorin	C	3	4		1		28					5		5			2	4
Vizagapatam	C	28	92	133	144	42	27	18	32	15	10	23	10	9	15	7	3	6
India (French):																		
Chandernagor	C			1	6	14		3	2	1	3			3				
Karikal	C	13	14	11	14	7	11	5	9	9	4	4	2	4				
Pondichery	C	132	91	78	110	15	31	25	25	18	18	16	7	20				
	D	99	70	72	91	15	24	15	24	15	16	12	8	16				

[1] For 2 weeks.

[2] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths, P, present]

Place		Nov 25–Dec 29, 1934	Dec 30, 1934–Jan. 26, 1935	Jan 27–Feb 23, 1935	Feb 24–Mar. 30, 1935	Week ended— April 1935 6	April 13	April 20	April 27	May 1935 4	May 11	May 18	May 25	June 1935 1	June 8	June 15	June 22	June 29
Indo-China (see also table below):																		
Haiphong	C		1		3		1	2	1	2	2	1	2	1		1		1
Pnom-Penh	C				8													
Tourane	C	5	2	5	6													
Iran	C	1	4	7	1				1		4	7			3			
Teheran	C	2										1	1					
	D											1	1					
Iraq	C	33	34	7	6	1	6	1	3	7	11							
Arbil	C	3	1	4			2				1							
Baghdad	C														1			
Basra	C	6					1	1										
Mosul liwa	C		9		9		1	1										
Japan (see also table below)	C	141										9	14					
Kobe	C			1												1		
Mizuna Migifu Prefecture [3]																		
Nagasaki	C			1	3													
Nagoya	C														1	4		
Osaka	C											1						
Taiwan	D	2																
Lithuania. (See table below.)																		
Mexico:																		
Allende.[4]																		
Chihuahua	C	17	7	8	18	[5] 1			[5] 10			[5] 2						
Guadalajara	D												1		2	1		2
Mazatlan	C				1				1									
Mexico, D. F.	C	7	37	108	161	29	25											
Monterrey	C				1				2									
San Luis Potosi	D	1							1									
Vera Cruz	C				[3] 1													
Morocco. (See table below.)																		
Mozambique. (See table below.)																		
Nigeria	C	328	78	372	514			[5] 248	151	52	172							
Lagos	C			1										1				
Nyasaland. (See table below.)																		
Palestine	C	1	2	4	2						1		2					

Peru. (See table below.)																		
Poland	C				1													
Portugal (see also table below):																		
Lisbon	C	1			5	1	1							1				
Oporto	C	1								1				1				
Portuguese East Africa	C					1		1		1	3	1	2					
Salvador	C	28	88	74														
Saudi Arabia	C				48					19			5					
Siam	C	20	24	2														
Bangkok	C		1	1														
Sierra Leone	C	172	111	295	123		[1] 19		[1] 177		[1] 53		[1] 11		[1] 17			
Spain	C	78	16	15	34	6	3	16	11	7	11	6	14	8	6	14		
Straits Settlements: Singapore	C								7			2	4	1			4	2
Sudan (Anglo-Egyptian)	C	12	13	9	8	12	1	8	2	1	1	2	2	2				
Syria:																		
Damascus	C	49	6	2														
Provinces	C	114	28	4	2				1									
Tunisia	C		5									1						
Turkey. (See table below.)																		
Union of Soviet Socialist Republics. (See table below.)																		

[1] For 2 weeks.
[2] Imported.
[3] Report dated June 11, 1935, states that 10 deaths from smallpox had occurred at Mizuna Migifu Prefecture, Japan.
[4] A report dated Dec. 28, 1934, states that about 48 cases of smallpox with 5 or 6 deaths had been reported at Allende, Mexico
[5] For 3 weeks.

On vessels:		
S. S. *Varela* at Basra	1 case	Dec. 8, 1934
S. S. *Talma* at Hong Kong	1 case	Jan. 19, 1935
S. S. *Chilka* at Rangoon from Gopalpore	1 case	Jan. 23, 1935
S. S. *Aorangi* at Sydney from Vancouver	1 case	Jan. 21, 1935
S. S. *Hosang* at Singapore from Osaka	1 case	Feb. 2, 1935
S. S. *Rhona* at Port Swettenham from Madras	1 case	Feb. 22, 1935
S. S. *Mongolia* at Suez from Australia	1 case	Feb. 24, 1935
S. S. *Ellenga* at Rangoon	1 case	Feb. 26, 1935
S. S. *Suisang* at Singapore from Hong Kong	1 case	Feb. 27, 1935
S. S. *Empress of Britain* at Singapore from Bombay	1 case	Mar. 3, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	Mar. 11, 1935
S. S. *Kutsang* at Hong Kong	1 case	Mar. 14, 1935
S. S. *Tatsuta Maru* at San Francisco	1 case	Mar. 14, 1935
S. S. *Tatsuta Maru* at San Francisco	1 case	Mar. 15, 1935
S. S. *Pendeen* at Port Said from Odessa	1 case	Mar. 16, 1935

On vessels—Continued.		
S. S. *Van Heutsz* at Singapore from Amoy	1 case	Mar. 26, 1935
S. S. *Mulbera* at Aden	1 case	Mar. 28, 1935
S. S. *Anshun* at Swatow from Hong Kong	1 case	Mar. 28, 1935
S. S. *Varsova* at Karachi	1 case	Mar. 30, 1935
S. S. *Jinkai Maru* at Singapore from Miike	1 case	Apr. 3, 1935
S. S. *Ozarda* at Tuticorin from Akyab	1 case	Apr. 3, 1935
S. S. *Ekma* at Rangoon from Calcutta	1 case	Apr. 12, 1935
S. S. *Ipoh* at Penang from Singapore	1 case	Apr. 12, 1935
S. S. *Hong Peng* at Singapore from Amoy	1 case	Apr. 17, 1935
S. S. *Anhui* at Singapore from Hong Kong	1 case	Apr. 18, 1935
S. S. *Jalagopal* at Rangoon from Chittagong	1 case	Apr. 19, 1935
S. S. *Nagasaki Maru* at Nagasaki from Shanghai	1 case	May 10, 1935
S. S. *Karoa* at Singapore from Calcutta	1 case	May 29, 1935
S. S. *Anshun* at Singapore from Hong Kong	1 case	June 1, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	June 4, 1935

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases, D, deaths, P, present]

Place		December 1934	January 1935	February 1935	March 1935	April 1935	May 1935
Belgian Congo (see also table above)	C	--------	109	58	95	151	--------
Bolivia	C	35	52	42	42	36	--------
Chosen	C	15	159	179	178	211	--------
Dahomey	C	--------	3	4	16	--------	--------
Finland	C	--------	--------	--------	--------	1	--------
France	C	57	31	137	78	8	15
Guatemala	C	2	--------	2	1	--------	--------
Indo-China (see also table above)	C	280	605	582	601	552	303
	D	25	67	69	53	92	53
Japan (see also table above)	C	--------	21	8	--------	--------	--------
Lithuania	C	1	--------	--------	--------	--------	--------
Morocco	C	5	--------	--------	3	8	13
Mozambique	C	--------	3	1	4	3	--------
Nyasaland	C	13	--------	13	26	--------	--------
Peru	C	36	37	6	16	15	--------
Portugal (see also table above)	C	99	54	55	43	25	--------
	D	16	4	9	2	1	--------
Turkey	C	5	5	19	28	1	13
Union of Soviet Socialist Republics	C	392	390	--------	--------	--------	--------

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Nov. 25–Dec. 29, 1934	Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Week ended— March 1935					April 1935				May 1935				June 1935		
					2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15
Algeria:																				
Algiers Department	C	2	5	1	5			6	1			4	14	3	6	10	19		4	
Algiers	C															1	1	1		1
Constantine Department	C	14	12	25	13	15	9	15	6	23	13	11	37	1	3	8	11	7	18	8
Bone	C		2																	
Constantine	C	1	1	6		1	2		1	1	2					2				
Philippeville	C																	3	1	
Oran Department	C	2							11	2			1			2		1		1
Southern Territories	C				6			2	3	2		1			6		14			
Basutoland	C	3	8																	
Belgian Congo	C	4	4				1													
Bolivia. (See table below:)																				
British East Africa: Uganda	C	1		4	1															
Bulgaria	C	13	10	1			1	3	3	2										
Chile	C	1,669	278	575	139	95			[1] 299	83										
Concepcion	C	5				8				12										
Iquique.[2]																				
Santiago	C	931				46				50										
Valparaiso	C	68	22	7		2	1		2		2	1		4			1			
China:																				
Canton	C															1				
Hangchow	C						1													
Nanking	C						1							1			1		1	
Shanghai	C	4				1	2										1		1	
Tientsin	C		2											1	1	2	1	1	3	
Tsingtao	C										2									
Chosen. (See table below.)																				
Colombia	D		1																	
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	1	1	5	3	1	3			5	4	4	8	4	4	4	8	2	2	3
Aswan	C	3				9	7	7	1		2	4	3	16	17	7	1	1	1	
Asyut	C			1			4	6	1				1							

[1] For 3 weeks.

[2] For the week ended Mar. 9, 1935, 11 cases of typhus fever were reported at San Jose nitrate camp about 42 miles from Iquique, Chile.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 25–Dec 29, 1934	Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb 23, 1935	Week ended— March 1935 2	9	16	23	30	April 1935 6	13	20	27	May 1935 4	11	18	25	June 1935 1	8	15
Beheira	C	17	22	162	34	34	53	50	52	57	72	63	51	55	41	45	20	13	15	12
Beni-Suef	C			3			2				1				1		1		1	1
Cairo	C	1	1	7	2			3			4	1	1		1	2	2		1	
Dakahliya	C		10	108	22	18	12	6	6	3	5	3	3	1	2		1			2
Damietta	D	1																		
Gharbiya	C	6	33	236	61	40	58	30	35	36	54	38	52		45	51		36	18	33
Girga	C		1						7		1	1								
Minufiya	C	21	3	33	7	10	16	15	36	27	35	35	28	9	18	11	6	7	5	5
Minya	C								1	1	1	1	1	2		2		1		
Port Said	C	2		1				1	1						1					
Qena	C	6				1		1	2					1		2		1		
Sharkiya	C	1		32	7	4	9	33	8		8	10	2	6					2	4
Suez	C								1											
Provinces	C	59	143	581	137	118	168	152	163	151	199	172	153	154	135	131	82	63	48	64
Greece (see also table below): Salonika	C	5																		
Guatemala. (See table below)																				
Hungary	C	8	1	1							4					13	4		5	
Indo-China. (See table below.)																				
Iran	C	68	76	60	32	28	16	15	15	32		64	36	26	33	18	11	33	21	
Teheran	C		1				3		1	1				1	6	8		2		
Iraq:																				
Baghdad	C	1																		
Sulaimani liwa	C										1	19	22	8	1		5	3	2	
Irish Free State:																				
Cork County—Castletown	C					1										1				
Waterford County—Lismore	C																		1	
Japan: Tokyo	C																		4	7
Latvia. (See table below.)																				
Libya: Tripolitania	C			2	2		2	[illegible]												
Lithuania	C	16	19	40	18	8	8	19	21	7		18	17	2	19	14	2	6	6	2
Mexico (see also table below):																				
Mexico, D. F.	C	39	61	49	11	15	14	11	21	18	17									
Progreso	D							1												
Torreon	C	2		1																

Morocco	C	17	7	24	4	5	3	8		29	26	25	32	18	28	21	10	19	19	16
Palestine	C		2																	
Haifa	C	4		2			1				1	1			[3] 1	1	1		2	
Jaffa	C	1	2								1				4	[3] 1				
Panama Canal Zone (See table below.)																				
Peru. (See table below.)																				
Poland	C	241	199	291	84	128	118	114	136	163	128	138	168	150	174	139	134	127	104	
	D	10	17	21	2	1	8	17	8	8	8	8	9	9	12	14	7	5	4	
Portugal (see also table below):																				
Oporto	C	2																		
Tarouca (near)	C		26																	
Rumania. (See table below.)																				
Saudi Arabia	C							[1] 6						3						
Straits Settlements: Singapore	C		1	2				1			1		2	1			1			
Syria	C			1																
Trans-Jordan	C			2		4	2			1	3	4	9	1	6	2	2	6	1	4
Tunisia:																				
Tunis	C	4				1			2	5	9	11	7	1	5	3				1
Provinces	C	56	49	67	7	16	18	14	51	39	62	63	61	42	24	42	50	34	25	11
Turkey. (See table below.)																				
Union of South Africa (See table below.)																				
Union of Soviet Socialist Republics. (See table below.)																				
Yugoslavia. (See table below.)																				
On vessel: S. S. *Nosa Prince* at San Francisco	C								1											

[1] For 3 weeks.

[3] Imported.

Place		December 1934	January 1935	February 1935	March 1935	April 1935	May 1935
Bolivia	C	103	37	32	43	86	
China. Manchuria—Harbin	C				26		
Chosen	C	29	55	126	179	[illegible]	
Czechoslovakia	C	7	15	18	52	13	
Greece	C	15	3	2	1	3	
Guatemala	C	21	31	20	30	35	7
Indo-China (French)	C		2				
Latvia	C	8	2		1		
Mexico (see also table above)	C		150	33			
	D		40	11			
Panama Canal Zone	C		1	1			
Peru	C	17	13	32	10	87	

Place		December 1934	January 1935	February 1935	March 1935	April 1935	May 1935
Portugal	C	27	12			8	
Rumania	C	127	246	240	433	494	
Turkey	C	32	22	15	56	25	69
Union of South Africa							
Cape Province	C	163	158	128	100	70	
Natal	C	8	6	4	2	30	
Orange Free State	C	296	133	69	71	26	
Transvaal	C	29	14	15	21	83	
Union of Soviet Socialist Republics	C	10,129	11,393				
Yugoslavia	C	17	55	83	117	104	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases, D, deaths, P, present]

Place		Nov. 25–Dec. 29, 1934	Dec 30, 1934–Jan 26, 1935	Jan. 27–Feb. 23, 1935	Week ended— March 1935					April 1935				May 1935				June 1935
					2	9	16	23	30	6	13	20	27	4	11	18	25	1
Brazil: [1]																		
Goyaz State	D				1		4	1	5	1	1		8	5	1			
Maranhao State [1]																		
Mato Grosso State.[1]																		
Minas Geraes State [1]	C																	6
	D													3	6			
Para State.[1]																		
Sao Paulo State.[1]																		
Colombia:																		
Intendencia of Meta—Restrepo	C				2										1			
	D	3	4	1														
Villavicencio	D			1														
French Equatorial Africa: Middle Congo—Pointenoire	C						[2] 2											
Gambia: Bathurst	C	2	1															
Gold Coast:																		
Aperadi	C		3															
	D		1															
Oda	C		1															
Ivory Coast:																		
Banguoanou	C			1														
Bassam (near)	C							1										
Bobo-Diolasso	C			1														
Dibro	C	3																
	D	1																
Diekekro	C	1																
Dimbokro	C		1															
Gagnoa	C				1													
Ouagadougou	C			1														
Toumodi	C	16																
	D	10																
Zuenoula	C	1																
Nigeria: Kano	C	2	1															

[illegible]	C		1															
Sierra Leone:																		
Freetown	C						1	1										
Hill Station (near Freetown)	C		1															
Togo:																		
Agoueve	C														1			
Koumea	C														1			
Sokode	C																1	

[1] Yellow fever has been reported in Brazil, as follows: During the week ended June 22, 1935, 2 cases in Mato Grosso State, 6 cases and 6 deaths in Minas Geraes State, and 1 case and 1 death in Sao Paulo State; during the week ended June 29, 1935, 1 case and 1 death in Maranhao State, 2 cases and 2 deaths in Minas Geraes State, and 1 case and 1 death in Para State; during the week ended July 6, 1935, 9 cases in Mato Grosso State and 4 cases in Minas Geraes State.

[2] Suspected.

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UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world: (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES [1]

June 16–July 13, 1935

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Poliomyelitis.—For the 4 weeks ended July 13, 653 cases of poliomyelitis were reported, as compared with 240 cases for the preceding 4 weeks. Exclusive of last year, when an epidemic in California and other Western States reached its peak during this period, the current incidence was the highest for this season in the 7 years for which data are available.

The current high incidence, however, is not general, but seems so far to be confined to a few States. In North Carolina, where an outbreak has been in progress, an average of about 55 cases per week has been reported for the past 6 weeks. In Virginia the number of cases has also been considerably above the seasonal expectancy. Tennessee, California, and New York reported slight increases over last year, but other States either appeared to be free from the disease or had only a normal seasonal incidence.

The accompanying table gives the number of cases reported from each State, by weeks, since May 12, 1935.

[1] From the Office of Statistical Investigations, U. S Public Health Service. The numbers of States included for the various diseases are as follows. Typhoid fever, 48, poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports. These summaries include only the 8 important communicable diseases for which the Public Health Service receives regular weekly reports from the State health officers.

TABLE 1.—*Poliomyelitis cases reported by States in recent weeks of 1935*

Division and State	Week ended—									
	May 18	May 25	June 1	June 8	June 15	June 22	June 29	July 6	July 13	July 20
All States [1]	19	38	50	51	101	146	160	156	191	227
New England:										
Maine	0	0	1	0	0	0	0	1	0	0
New Hampshire	0	0	0	3	0	1	1	0	0	1
Vermont	0	0	0	0	0	0	0	0	0	0
Massachusetts	0	2	0	0	1	2	3	1	3	12
Rhode Island	0	0	0	0	0	0	0	1	1	2
Connecticut	0	0	0	0	0	1	1	0	2	3
Middle Atlantic:										
New York	1	2	1	1	1	12	8	11	18	21
New Jersey	0	1	2	2	1	1	3	0	4	1
Pennsylvania	0	0	0	2	0	0	3	0	0	1
East North Central										
Ohio	0	0	0	1	1	2	1	1	0	1
Indiana	0	0	0	1	1	1	0	0	0	0
Illinois	0	0	1	1	2	0	2	2	5	2
Michigan	0	0	1	0	0	1	1	2	1	0
Wisconsin	1	1	0	0	1	1	1	1	2	1
West North Central.										
Minnesota	0	0	1	1	2	0	0	1	0	0
Iowa	1	0	1	0	0	0	0	0	0	0
Missouri	0	0	0	1	0	0	0	1	1	2
North Dakota	0	0	0	0	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0	0	1	0	0
Nebraska	0	0	0	0	0	0	0	0	0	0
Kansas	0	0	0	1	0	0	0	1	0	0
South Atlantic										
Delaware	0	0	0	0	0	0	0	0	0	1
Maryland	0	0	0	1	0	0	0	1	0	0
District of Columbia	0	0	0	0	0	0	0	0	3	1
Virginia	1	0	2	1	3	16	24	28	45	72
West Virginia	0	0	1	1	0	0	0	1	0	0
North Carolina	2	18	25	17	57	60	63	55	52	48
South Carolina	0	0	1	0	0	2	2	0	3	1
Georgia	0	3	1	0	0	0	1	0	0	1
Florida	1	0	1	1	0	0	0	2	0	0
East South Central:										
Kentucky	0	0	0	0	0	1	1	0	0	5
Tennessee	1	0	0	0	0	1	1	5	11	3
Alabama	0	1	2	1	2	0	5	2	6	3
Mississippi	0	0	1	0	1	0	0	0	1	0
West South Central.										
Arkansas	0	0	0	1	0	1	0	0	0	1
Louisiana	4	2	4	2	7	3	4	3	3	7
Oklahoma	1	1	0	0	0	0	0	1	0	0
Texas	1	0	0	3	0	5	0	2	1	1
Mountain [1]										
Montana	0	0	0	0	0	1	1	0	0	0
Idaho	0	0	0	0	1	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	0	1	0	0	0	0
Arizona	0	1	1	0	0	1	0	0	0	0
Utah	0	0	0	0	0	0	0	0	0	0
Pacific:										
Washington	2	0	0	0	0	0	0	0	0	0
Oregon	0	0	0	0	0	0	1	0	0	1
California	3	6	3	9	20	32	33	32	29	35

[1] Nevada excluded.

Meningococcus meningitis.—The number of cases of meningococcus meningitis dropped from 568 for the preceding 4 weeks to 392 for the 4 weeks ended July 13. The current incidence was still about three times that for the corresponding period last year and was the highest for this period since 1929.

The table shows the number of cases reported in each geographic area by weeks since May 19, with totals for a preceding 24-week period and for the corresponding period of the 2 preceding years.

TABLE 2.—*Meningococcus meningitis cases reported in each geographic area for recent weeks of 1935* [1]

Division	Cases reported for 24 weeks ended—			Week ended—								
	May 20, 1933	May 19, 1934	May 18, 1935	May 25	June 1	June 8	June 15	June 22	June 29	July 6	July 13	July 20
All divisions	1,873	1,303	3,044	152	147	161	108	132	94	78	85	65
New England	54	54	70	5	5	4	1	2	0	1	4	1
Middle Atlantic	279	181	461	24	38	35	24	48	27	14	13	15
East North Central	623	363	776	42	32	35	19	17	25	19	31	15
West North Central	259	160	389	16	12	15	19	8	5	7	7	9
South Atlantic	183	173	551	27	23	42	29	37	15	11	14	13
East South Central	149	113	301	11	10	13	3	8	9	5	4	6
West South Central	100	138	208	8	6	8	4	4	2	12	3	1
Mountain	68	52	104	4	9	1	3	0	3	1	5	2
Pacific	98	69	184	15	12	8	6	8	8	8	4	3

[1] See PUBLIC HEALTH REPORTS for June 7, May 10, Apr 12, and July 5, 1935, for weekly data by geographic areas for the earlier part of 1935.

While the number of cases fluctuated considerably during the current period, it is evident that the disease was considerably less prevalent in all sections of the country than it was during the preceding 4-week period. However, the incidence in each section was well above that for the corresponding period in the 2 preceding years. The New England States have been the least affected by the current wave, and the increase over last year was apparently greatest in the South Atlantic and East North Central areas.

Smallpox.—The incidence of smallpox, although declining seasonally, still maintained an excess over recent years. Reported cases for the 4 weeks ended July 13, numbered 552, as compared with 204, 424, and 482 for the corresponding period in each of the 3 preceding years, regressively. The disease declined rapidly in States in the West North Central, Mountain, and Pacific regions, where it has been most prevalent, but the incidence in those regions remained considerably above that of recent years. In the South Central regions the incidence was low—the South Atlantic section reported 17 cases, 13 of which occurred in Georgia—while no cases were reported from the New England and Middle Atlantic States.

Influenza.—The influenza incidence was close to the average for recent years. For the 4 weeks ended July 13, for the country as a whole, 1,170 cases were reported. The number of cases in the North Central sections was somewhat above the expectancy for this period, but in other areas the incidence either approximated that of last year or fell slightly below.

Diphtheria.—For the current period, 1,528 cases of diphtheria were reported. The East North Central and South Atlantic regions reported slight increases over last year's figure for the same period, but in all other sections of the country the disease was less prevalent.

While the current incidence approached very closely that for the corresponding period last year (1,592), it remains the lowest in recent years.

Measles.— The number of cases of measles reported for the 4 weeks ended April 13 was 41,474, approximately 50,000 less than were reported for the preceding 4-week period. The incidence was only about 20 percent in excess of that for the corresponding period last year, but it was much higher than in preceding years. Each geographic area reported a decline, but not sufficient in the areas in which the disease has been most prevalent (North Atlantic, North Central, Mountain, and Pacific) to bring it down to the level of last year.

Typhoid fever.—The expected seasonal increase of typhoid fever was apparent in all sections of the country, but the total number of cases (1,911) was still below the figures for the corresponding period in previous years. Minnesota, with 110 cases, most of which occurred in Minneapolis, brought the incidence in the West North Central area about 40 percent above that of last year, while North Carolina (132 cases) and South Carolina (141 cases) seemed mostly responsible for an increase in the South Atlantic region. In the North Atlantic sections the incidence was about on a level with that of last year, and other areas reported appreciable decreases.

Scarlet fever.— The number of cases of scarlet fever dropped from 22,446 for the 4 weeks ended June 15 to 9,775 for the current 4 weeks. The incidence was, however, still high in relation to previous years. For this period in 1934, 1933, and 1932 the numbers of cases totaled 7,517, 6,759, and 7,538, respectively. Each geographic area reported a decline, but in all regions except the South Central the figures were well above those of last year. In the South Central sections the incidence has been the lowest in recent years, but during the current period the rate of decrease was somewhat slower than in other sections, and for the first time during the current year the number of cases in the South Central areas exceeded that for last year.

Deaths, all causes—The death rate from all causes in large cities, as reported by the Bureau of the Census, was about normal as compared with previous years. For the 4 weeks ended July 13 the average weekly rate was 10.1 per 1,000 inhabitants (annual basis). For the preceding 4 years the average for the corresponding periods was 10.2.

ROENTGENOLOGICAL APPEARANCES IN SILICOSIS AND THE UNDERLYING PATHOLOGICAL LESIONS

A Report by a Committee Composed of Dr. H. K. Pancoast, Dr. E. P. Pendergrass, Dr. A. R. Riddell, Dr. A. J. Lanza, Dr. Wm. J. McConnell, Dr. R. R. Sayers, Dr. H. L. Sampson, and Dr. L. U. Gardner

The current use of a variety of classifications for the roentgenological appearances of silicotic lesions is making it difficult to correlate the results of a rapidly increasing number of observers. In South Africa, where silicosis is a product of a single industry and where the problem is handled almost exclusively by a bureau of the Government, the classification that has evolved is entirely adequate for their purposes; but in a highly industrialized country silicosis develops in a great variety of occupations. A diagnosis may be required of a physician in a plant, in a public health office, in a sanatorium, or in the physician's private office. Sometimes he may have had little experience in the interpretation of roentgenograms of the chest and will be forced to lean heavily on the interpretation of a roentgenologist. The legal aspects of the problem have placed grave responsibilities on the medical profession and have often been a source of embarrassment. Only the physician who has examined the subject, has obtained an occupational history of an adequate exposure to silica dust, and has before him a suitable roentgenogram of the chest should make the diagnosis of silicosis. The roentgenologist, not in possession of these facts, can merely state whether the shadows which he sees in a film are consistent with this diagnosis.

If objective terms, descriptive of the type of pathological changes, could be generally adopted, material progress would result. The clinician would not have to accept a diagnosis from the roentgenologist, general students of the disease would be able to correlate the findings of various observers, and more accurate definition of roentgenograms would be available for medico-legal purposes. Roentgenograms of the chest, which are notoriously difficult to reproduce as illustrations, could be described in word pictures capable of interpretation in the light of the personal knowledge of the observer. An error in diagnosis need not necessarily be passed on to others not in possession of the original film.

With these obstacles in mind, a committee has been at work for the past 2 years preparing a tabulation of the various lesions of silicosis together with terms that attempt to depict the character of the shadows cast on an X-ray film by these lesions. This report is submitted to invite criticism in the hope that the terms suggested, or others of a similar nature, will be generally adopted.

It should be distinctly understood that the tabulation which follows applies only to *silicosis*, that form of pneumoconiosis resulting from the inhalation of dust with a high silica (SiO_2) content.[1] Other forms, like asbestosis, are excluded from this consideration because their pathology is essentially different from that of silicosis.

The tabulation contains two columns. On the left are the roentgenological appearances and on the right are the corresponding pathological lesions. There is further subdivision to describe the appearances of (1) healthy lungs, (2) the uncomplicated silicotic lung, and (3) lung of silicosis with infection. The changes described under the first division are those compatible with a state of good health; and while they *may* be produced by the inhalation of relatively small amounts of silica dust, they are not sufficiently characteristic or advanced to substantiate a diagnosis of silicosis. Similar or identical appearances may also result from the inhalation of nonsiliceous dusts, from certain infections, from cardio-vascular disease, and from certain other rare conditions. The changes involved are for the most part confined to the lymphatics and perilymphatic connective tissues and do not affect the parenchyma of the lung. Since, by definition, silicosis is a disease characterized by nodular fibrosis in the parenchyma of the lung, these alterations, even when they may have been caused by inhaled silica, do not constitute a basis for a diagnosis of silicosis. The second group covers the discrete and conglomerate nodular fibrotic reactions of simple silicosis. The last group deals with silicosis complicated by infection. In the majority of instances the infecting organism is the tubercle bacillus, but the classification is sufficiently broad to include other types of infection. Certain criteria by which one attempts to differentiate various forms of infection will be discussed.

Roentgenological appearances	*Histological appearances*
HEALTHY LUNGS AND ADNEXA	
1. *Healthy lungs.*—As defined by the N. T. A. Committee report.	1 Essentially the normal tissues of the vascular tree, the mediastinum, the bronchi, and trachea.
2. Irregular exaggeration of the linear markings, with possibly some beading confined to the trunks.	2. Cellular connective tissue proliferation about lymphatic trunks in the walls of vessels and bonchi. Beading may be due to various causes, as blood vessels seen end on, arteriosclerosis, minute areas of fibrosis in lymphoid tissues along the trunks.

[1] Some of the nonsiliceous components of certain industrial dusts seem to modify the pathological reaction, but the character of shadows cast by these modified lesions is not sufficiently defined at the present time to include them in the tabulation Later, when more information has accumulated, certain other terms may have to be included

Roentgenological appearances	*Histological appearances*
HEALTHY LUNGS AND ADNEXA—continued	
3. Increased root shadow.	3. Cellular reaction in the tracheobronchial lymph nodes with extensions along afferent lymphatic trunks.

These changes come within normal variations when not accompanied by recognized organic disease.

SIMPLE SILICOSIS

Roentgenological appearances	*Histological appearances*
4. *Nodulation.*—Discrete shadows not exceeding 6 mm in diameter, tending to uniformity in size, density, and bilateral distribution, with well-defined borders surrounded by apparently normal lung shadow. The outer and lower lung fields characteristically show fewer nodules.	4. Circumscribed nodules of hyaline fibrosis located in the parenchyma of the lung. Occasionally some of these nodules may show microscopic foci of central necrosis.
onglomerate shadows that appear to result from a combination or consolidation of nodulation usually with associated emphysema manifested by— *a.* Localized increased transparency of the lung with loss of fine detail. *b.* Intensification of the trunk shadows by contrast. *c.* Depression of the domes with possible tendency toward individualization of the costal components of the diaphragm. *d.* Lateral view: Increase in the preaortic and retrocardiac space with exaggerated backward bowing of the spine. Widening of the spaces between the ribs may or may not be present.	5. The result of coalescence of discrete nodules; an area in which the nodules are closely packed and most of the intervening lung is replaced by more or less hyaline fibrous tissue. The lung architecture is partially obscured. No demonstrable evidence of infection. Emphysema is a compensatory dilatation of the air spaces with or without thickening of the septa.

SILICOSIS WITH INFECTION

The characteristic appearances described under simple silicosis are modified by infection as follows:

Roentgenological appearances	*Histological appearances*
6. Localized discrete densities and/or string-like shadows accompanying those of simple silicosis described above.	6. Strands of fibrous tissue, often along trunks and septa, with or without areas of calcification; indicative of "healed" infection.

Roentgenological appearances	*Histological appearances*
SILICOSIS WITH INFECTION—continued	
7. *Mottling.*—Shadows varying in size with ill-defined borders and lacking uniformity in density and distribution, accompanying simple silicosis.	7. (*a*) Areas of broncho-pneumonia with or without caseation, i. e., acute infection. (*b*) Lobular areas of proliferative reaction with or without caseation, i. e., chronic infection.
8. *Soft nodulation.*—The nodular shadows described under simple silicosis, 4, have now assumed fuzzy borders and/or irregularities in distribution. This change may or may not accompany the simple mottling of 7.	8. Perinodular cellular reaction either exudative or proliferative in character.
9. *Massive shadows* of homogeneous density not of pleural origin symmetrically or asymmetrically distributed.	9. Extensive areas of fibrosis probably due to organized pneumonia of tuberculous or nontuberculous origin superimposed upon a coexistent silicotic process. Outlines of normal structures may be partially destroyed.

COMMENT

For the first group of appearances we have adopted the nomenclature of the National Tuberculosis Association Committee and described the lungs as *healthy* rather than *normal*, as a perfectly normal adult human being is a great rarity. For a description of the roentgenological appearance of the healthy chest the reader should consult a paper by Pancoast, Baetjer, and Dunham in the American Review of Tuberculosis for 1927, vol. 15, pp. 429–471.

As already mentioned under 2, *Irregular exaggeration of the linear markings, with possibly some beading*, belongs in the healthy chest group even when found in persons with a history of considerable exposure to silica, for such changes are nonspecific in character and they do not involve the parenchyma of the lung. Silicosis as a clinical disease begins only when the lung proper is affected. Likewise, under 3, *Increased root shadow* may be of nonspecific origin and hence is not diagnostic. In the *early* stages of silicosis the mediastinal shadow may be widened, owing to the enlargement of the tracheobronchial lymph nodes from accumulated dust and cellular reaction to it; later, when specific fibrosis develops, the tissues generally contract and the nodes decrease in size. The changes described under 2 and 3 may be caused by many forms of irritation; if they are due to silica they are identifiable only by microscopic examination. They do not apparently interfere with respiratory function, and they are not of diagnostic significance.

The second group of changes is limited to *simple silicosis* uncomplicated by demonstrable signs of infection. This condition is characterized by the presence of small, discrete nodules of fibrous tissue disseminated throughout the functional parts of both lungs. The lesions and the shadows cast by them tend to be spherical, hard, sharply defined, and vary in size from 2 to 6 mm. While the distribution is usually uniform throughout both lungs, the extreme apices and the outer portion of the bases are frequently uninvolved. In less advanced cases the nodules remain discrete and separated by air-containing tissue. Irvine has aptly compared the shadows observed in the roentgenogram of the silicotic lung to those cast by a tree. In the earliest stages, when the reaction to silica is confined to the perilymphatic connective tissues, producing an accentuation of the linear markings, the shadow is that of a leafless tree. As small nodules begin to appear in the parenchyma of the lung, the tree begins to bud and the shadow of its branches is less clearly defined. When the tree is in full leaf, the stage of advanced nodulation, the shadow of the branches is completely obscured. Previous classifications have been concerned largely with the degree of nodulation as determined by the size and number of the nodules in the lung. We will not attempt to deal with this problem here, but choose to leave the "stage" of the silicosis to the internist, who has physical findings as well as a roentgenogram at his command.

Number 5 deals with the *conglomerate shadows* of simple silicosis, which appear to develop from a combination or consolidation of discrete nodules. The resultant lesion and the shadow that it casts are often difficult to distinguish from the *massive shadows* of silicosis with infection, 9. It is generally assumed that conglomeration results from accidental overlapping and fusion of discrete nodules when they become very numerous; but since conglomeration is usually a localized affair and does not occur in the same position of the lung of every individual, it is logical to enquire why the nodules happen to fuse in one portion of the lung and not in others. Microscopic examination of the tissues from such areas reveals no evidence of active infection. The nodules seem to be much closer together than in other portions of the lung, they are less uniform in size, and they are usually embedded in a matrix of diffuse fibrous tissue having the same characteristic hyaline appearance as that forming the nodules themselves. It seems probable that conglomeration may have occurred because the portion of the lung in question was previously damaged by a localized inflammatory process occurring before or during the early period of dust exposure. Because the tissue was injured, more dust would tend to accumulate in the area, the nodules would develop irregularly and would frequently be very close together. The silica lodging in preexisting granulation or scar tissue would exert its characteristic

effect, and a diffuse hyalinization would result. This explanation for conglomerate reaction is at present hypothetical; proof will come from long continued serial roentgenographic studies of groups of persons exposed to silica dust and from the chance autopsy that may be obtainable. To differentiate *conglomerate shadows* from the *massive shadows* of infection, 9, reliance must be placed upon the absence of change in size and character of the shadows in serial films taken over an extended period of time and upon the clinical findings in the case.

Emphysema is usually associated with far advanced silicosis and it is particularly liable to complicate conglomerate nodulation. It occurs in the immediate vicinity of the conglomeration as a result of the distortion produced by contracting scar tissue; there is also a generalized "compensatory" emphysema found along the borders of the lung, particularly at the bases. The latter type is also common in far-advanced generalized nodulation.

In the last group, *silicosis with infection*, are included all cases with detectable evidence of infection whether active or inactive. In this respect we depart from the South African procedure, which includes here only active infection. The difficulty of determining activity, particularly in the silicotic subject, is our chief reason for this arrangement.

Number 6 covers foci of healed infection. Identification of such changes depends upon the same criteria that are generally employed in otherwise normal individuals. In the silicotic subject the shadows usually occur upon a background of generalized nodulation, although in some cases there may be a distinct tendency toward excessive nodulation in the immediate vicinity of the scars left by the infection. Where the exposure to dust has been limited, the major evidence of nodulation may occur about the foci of healed infection with much less reaction in the remainder of the lung. The string-like shadows of healed fibroid tuberculosis are not difficult to interpret if they occur in the classical location, i. e , in the upper third of the lung. In the lower lung they present a problem whose solution depends largely upon the experience of the roentgenologist.

The term *mottling*, 7, we have reserved to describe the shadows of infectious lesions in contradistinction to *nodulation*, which is restricted to those of the silicotic dust nodule. It is essential that this distinction be appreciated and recorded in the terminology. In tuberculosis, mottling is due to bronchogenic or aspiration foci of disease which exhibit a characteristic clustered arrangement. The lesions may be exudative (acute) or productive (chronic) in type; the difference will be registered on the roentgenogram by a mottling which is fluffy and ill-defined, or hard and sharply defined as the case may be. The distribution of the mottled foci, together with the presence of large foci of older disease interpreted as tuberculosis, and clinical and

laboratory findings establish the character of the infection. Mottling due to chronic infection that has developed previous to or simultaneous with the relatively early periods of dust exposure may exhibit little or no effect from the inhaled silica for many years. In nontuberculous broncho-pneumonias the large chronic foci are absent, and the disseminate mottling may involve different parts of one lung or of both lungs. In many instances the nature of the infection must be established by serial examinations over considerable periods of time and by careful correlation with clinical and bacteriological findings.

Soft nodulation, 8, is a term that has been coined to describe a rather uncommon combination of silicosis with infection, usually tuberculous. The ordinary hard, sharply defined nodular shadows of simple silicosis, under these circumstances, appear to have enlarged and lost definition. Their borders are now fuzzy and blend imperceptibly with the surrounding lung structure. Such lesions generally occur in association with localized conglomerate shadows in the apex or other portions of the lung. Histologically the infection appears to have localized in and about preexisting silicotic nodules so that each is surrounded by a zone of exudative or productive cellular reaction.

Massive shadows of homogenous density, 9, are cast by the areas of combined silicosis and infection, usually chronic in nature. The two processes appear to have developed simultaneously and unusual amounts of dust accumulate in the diseased area. Generalized nodulation usually occurs throughout the remainder of the lungs. Pleural densities can be differentiated in stereoroentgenograms, and by overexposure it often becomes possible to penetrate the extremely dense intrapulmonary areas and analyze their internal structure. Not infrequently cavities may be visualized that were completely overlooked with the usual technique. When due to tuberculosis, such lesions are often bilaterally symmetrical. If the process extends to the pleural surface, a tuberculous etiology is postulated, while other infections are more often deep-seated.

Histological examination of such lesions shows conglomerations of simple nodules embedded in masses of more or less perfectly organized granulation tissue. Often the fibrous tissue has undergone the same peculiar hyalinization that characterizes the interior of the silicotic nodule. Usually the outlines of the original lung architecture are completely destroyed. Manifestations of infection depend upon the nature of the process. If tuberculous, there will be foci of caseation and possibly small cavities. Calcification is not infrequent. If the process is inactive the presence of fibrous tubercles which do not exhibit the hyalinization of silicosis may be present. The occurrence of giant cells is helpful. A partially organized nontuberculous pneumonia usually contains foci of acute exudation of variable size. Clinically such unresolved pneumonias frequently exhibit periods of

exacerbation followed by regression. They may be due to a great variety of organisms, including the Friedlander group and oral anaerobes. Where all manifestations of activity have disappeared, the lesion is probably best classified as a conglomerate shadow of simple silicosis, 5.

The differentiation between these *massive shadows* of infectious origin and the conglomerate shadows of far-advanced simple silicosis is difficult and not always possible. Repeated reexamination of the patient for evidence of change in the roentgenographic appearance of the lesion, penetration of the massive areas by overexposure to analyze its internal structure, the clinical behavior of the patient, and repeated bacteriological examination of the sputum may all be necessary to determine whether an active infection is present.

It is hoped that the suggested terminology will receive a practical test. If others find it usable, the advantage of standard descriptive terms should outweigh the conservatism of those who are already using classifications of their own.

DEDICATION AND OPENING OF THE LEXINGTON NARCOTIC FARM

By W. L. Treadway, *Assistant Surgeon General, United States Public Health Service*

The first United States Narcotic Farm, at Lexington, Ky., was formally dedicated and opened by the Surgeon General on the afternoon of May 25, 1935. It was opened for inspection by the general public on the day of dedication and on the following Sunday, Monday, and Tuesday, after which it was closed to visits by the general public. During the 4 days in which it was opened to general inspection, 17,241 persons visited the institution, many of whom came long distances by motor from adjoining States. Three thousand four hundred and eighty visitors attended the dedication and opening exercises.

Admissions were accepted on and after May 29, 1935. Arrangements were made for the transfer of some 300 addict prisioners from the Federal prison system; to accept cases placed on probation by courts having jurisdiction, one condition of such probation being that the probationers voluntarily submit themselves to confinement and treatment in a narcotic farm; and to accept a limited number of persons voluntarily seeking treatment. On June 30, 1935, there were under care at the Lexington Narcotic Farm a total of 280 inmates.

The institution at Lexington, Ky., is for men only, 1,000 beds being provided, although it is contemplated that facilities will be developed for women addicts in the near future, as an adjunct to those facilities already provided for men.

The institution at Fort Worth, Tex., is in process of being developed. The preliminary plans have been approved, and it is an-

ticipated that the contract for the necessary buildings will be accepted some time during the present summer.

The institution at Lexington is designed primarily for the care of the more intractable type of person, largely the prisoner group. For that reason, the custodial features have been emphasized. The institution at Forth Worth will be more open in character, being designed as a cottage type, and the custodial features will be less emphasized than those at Lexington. Experiences have indicated that there are certain groups of addicts who require that greater emphasis be placed on custodial care, while others may be benefited by a more liberal policy. The institution at Forth Worth, therefore, will be supplemental to that at Lexington.

The problem of institutional treatment for drug addiction, however, must take into account not only the precipitating and underlying causes of addiction, but the diverse motives or underlying reasons for seeking treatment, the incidence of intercurrent diseases and defects in such a group, the great differences in the types of personalities involved, and the need for protecting the institution community against the weaknesses and cupidity of its component individuals. The important precipitating, or immediate, causes of addiction are related to the previous uses of such drugs in medical treatment, to self-treatment for the relief of pain, to recourse to drugs during emotional stress, to the influence of and association with others who are habituated to their uses, to overcome drunkenness, and to indulgence for the sake of experience, curiosity, a thrill, or bravado.

The more important predisposing or underlying causes of addiction are related to the inherent constitutional make-up of the individual. The so-called nervously unstable person is more prone to embrace the habitual use of narcotic drugs than one with a stable constitution. Experience with persons addicted to the use of habit-forming drugs indicates that they had many emotional difficulties and inner conflicts long before they became addicted to the use of such drugs. Hence the fundamental factors in the treatment and rehabilitation of such persons are a definite challenge to psychobiology and necessitate an appreciation of the mental hygiene factors involved.

A situation wherein an individual, through long use of opium or its derivatives, may safely take large doses of his drug that would be fatal to one unaccustomed, has intrigued the interest of many observers. It has been explained on the grounds that the oxidation of morphine within the body produces a toxic byproduct that is neutralized by an additional intake of morphine and, unless so neutralized, gives rise to abstinence symptoms. This theory, together with that of a supposed development of active immunity from the use of such drugs is of historical interest only. Other hypotheses deal with the fate of morphine in the human body. These hinge upon the theory that the

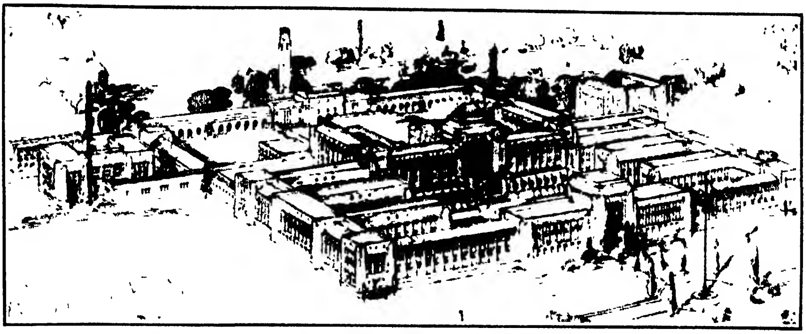
rate of destruction is increased through habituation; that muscle tissue, acting as a buffer, develops the power to store morphine and to release it so gradually as not to affect the nervous system fatally; that body cells, particularly nerve cells, are rendered less sensitive through continued use of the drug; and that the glycerophosphoric or choline-lecithin portion of the cell molecules is replaced by the alkaloid. A great deal of work is required, however, before these hypotheses can be established on firm footings.

Other theories have been advanced to explain the phenomena of tolerance based upon physiological interpretations. Thus, there is the one which considers a simultaneous stimulation and depression of different parts of the nervous system, tolerance being established through accumulation of higher levels of stimulation that outlast and ultimately replace the more fleeting depressant effects. In the other, which concerns an imbalance in the autonomic and endocrine systems, conflicting opinions arise, and they appear to be confused with the stimulation-depression theory already mentioned. A conclusion that tolerance is no more than a question of physiological balance does not simplify an understanding of its mechanism or how it operates.

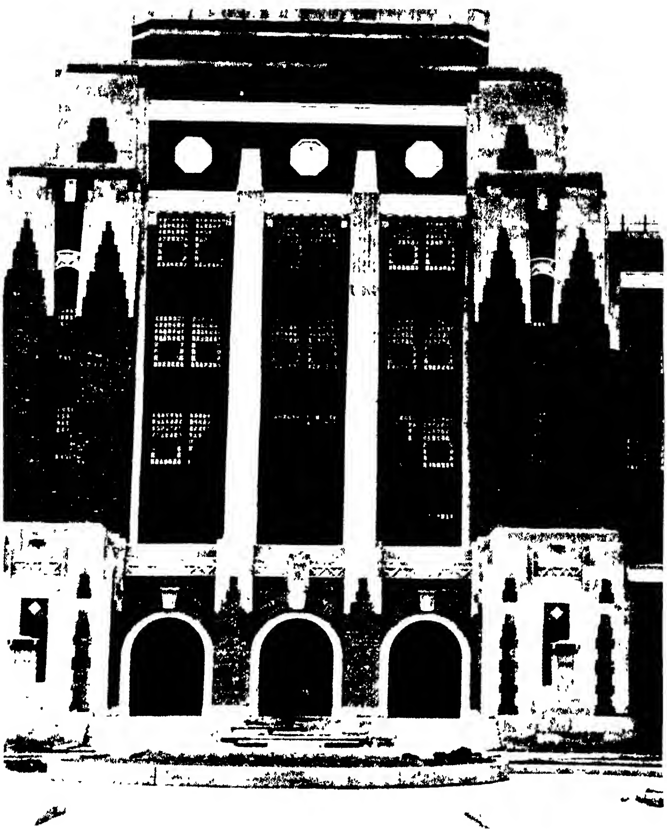
Specific treatment for chronic opium poisoning hinges upon a better understanding of the mechanism of drug tolerance and of abstinence symptoms. The conclusions of one group of observers, who seemingly had established some basic principles, have been refuted by others, so that the situation remains confused. Much investigative work has been accomplished, however, that may serve as guideposts for future inquiries, but a great deal of it has been pocketed in blind trails that lead nowhere.

The dedication and opening of the institution at Lexington, Ky., represents a change in the policy of the United States toward the so-called drug-addiction problem. No person will be eligible for treatment or confinement in the institution unless he is an addict as defined in the law authorizing these narcotic farms, and then only if he complies with the regulations governing admissions.

The inception of the institution at Lexington is an expression on the part of the United States Government that restrictive laws governing commerce in narcotics are not the only measures to be applied as a possible solution of the medico-social problem of drug addiction. The presence in American communities of persons who are addicted to the use of narcotic drugs constitutes an ultimate market for smuggled or contraband drugs and tends to menace the legal supply of such drugs originally destined for medical or scientific purposes. Public policies, therefore, which have for their object the regulation and control of the production and distribution of narcotic drugs are proportionately as effective as those which undertake to control, segregate, or cure the drug addict population of a community.

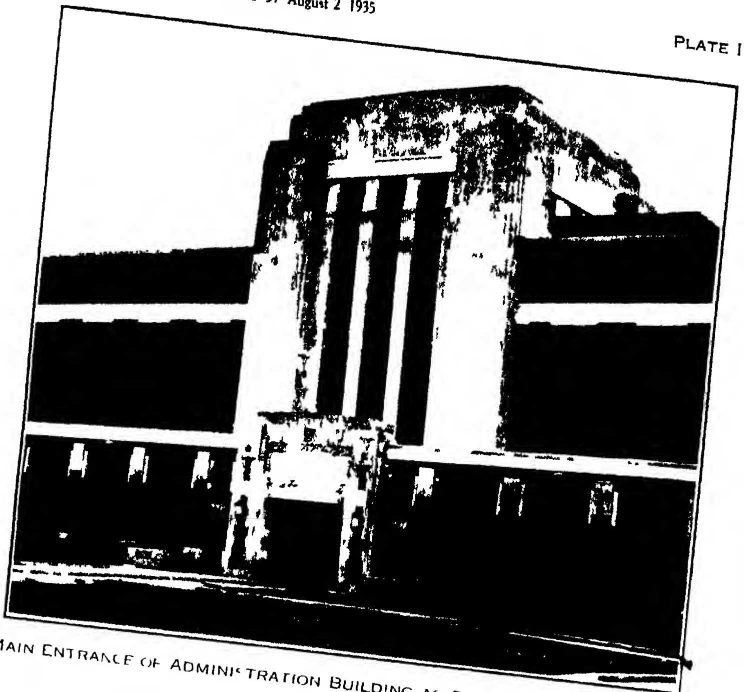


ARCHITECT'S DRAWING OF THE LEXINGTON NARCOTIC FARM, SHOWING PLAN OF BUILDINGS

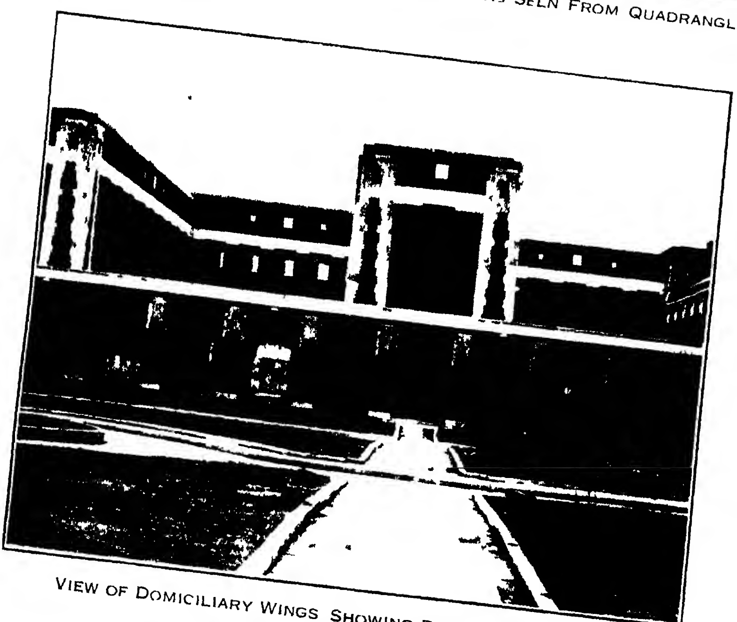


VIEW OF CENTER AND MAIN ENTRANCE OF HOSPITAL BUILDING FROM INSIDE QUADRANGLE.

PLATE II



MAIN ENTRANCE OF ADMINISTRATION BUILDING AS SEEN FROM QUADRANGLE



VIEW OF DOMICILIARY WINGS SHOWING PART OF QUADRANGLE

The isolation and segregation of drug addicts with the object of medical treatment appears desirable and necessary; for their presence and contact with others in American communities are a potential danger and a causative factor in the production of further addiction, it being estimated that more than half of the present-day addiction is attributable to contact with other addicts.

The significance of this legislation in relation to Federal offenders may be better appreciated when it is realized that repeated prison sentences have been imposed more often upon drug addicts than on any other type of adult prisoner. The situation respecting repeated prison sentences has challenged the usefulness of handling drug addicts through prison sentence alone. An appraisal of this new policy respecting the establishment of the narcotic farms may be best made through study and investigation of the problem of drug addiction as it affects the population as a whole. Such studies have shown that addiction to habit-forming drugs is widespread; that all classes and groups of the general population are affected in one way or another; that the geographical distribution of these people corresponds relatively to the geographical distribution and density of the general population; that occupation, age period of life, nativity, sex, color, marital or educational status are not exempting factors; for drug addiction appears to be through and on the people.

Heretofore, so far as public policies are concerned, drug addiction has been regarded almost solely as a penal and correctional problem, somewhat like that of the insane of an earlier day. In the establishment of an institution such as that at Lexington, it must be appreciated that any betterment in the social, moral economic, or commercial conduct of a self-governing people springs not from the mind of any one person, but from the congregate opinions and wishes of generations in community groups. Notwithstanding the sudden emergence of the so-called "reform movements", they are always based upon a framework that is deeply rooted in a background of tradition and community practice.

The place the narcotic farms occupy in the scheme of our social order has behind it a continuous evolutionary growth of more than three centuries. During that period, society has endeavored to set up coordinate public policies directed toward the solution of community problems and those of individuals who could not meet adversity and conform with the ever changing but liberal standards in human relationships. As American communities grew older and populations increased, as civilization and human relationship became more complex and exacting, and as isolation gave way to more intimate contacts and uniformity in outlook, there has been no escape from the constant increase in the number of those who, for various reasons, became social problems or charges upon the general public.

The object of the Lexington, Ky., farm is to rehabilitate, restore to health, and train to be self-supporting and self-reliant those who are admitted thereto. In addition, the control, management, and discipline are to be maintained for the safekeeping of the individual and the protection of American communities. Shops are being established to afford occupation, vocational training, and education. Experiments are to be carried on to determine the best methods of treatment and research in this field and the results are to be disseminated to the medical profession and the general public. In short, the functions of the institution will assume the character of a treatment and research center and of an educational, industrial, vocational, and rehabilitation center, with certain custodial features superimposed.

The fundamental background for establishing the narcotic farms represents more than the mere housing or domiciliary care of drug addicts or their individual treatment. These institutions must, because of the functions which they are expected to perform, be represented as medical centers, with all those diversified facilities which the broad activities and interests of modern medical science and the treatment of the physically and mentally sick entail. The problem of the treatment of drug addiction in its present stage involves a chemicopharmacologic, biochemical, psychobiologic, and medical approach. These institutions represent even more than individual services for those admitted; for in their conception they are an aspect of further specialization in the evolution of public policies that aim toward a partial solution of a particular problem confronting society.

These facilities, established for the confinement and treatment of persons addicted to habit-forming drugs, represent a form of specialization bearing a direct relationship to policies of law enforcement and the protection of American communities; to special problems in penal and correctional procedure; to safeguarding the uses of narcotic drugs in medical practice; to research and the quest for more accurate and fundamental knowledge concerning the nature of drug addiction and related phenomena; and to those instinctive demands ever present in the American people that the sick and afflicted shall be set in the way of strength and hope.

PUBLIC HEALTH SERVICE PUBLICATIONS

A List of Publications Issued During the Period January–June 1935

There is printed herewith a list of publications of the United States Public Health Service issued during the period January–June 1935.

The most important articles that appear each week in the PUBLIC HEALTH REPORTS are reprinted in pamphlet form, making possible a

wider and more economical distribution of information that is of especial value and interest to public health workers and the general public.

All of the publications listed below except those marked with an asterisk (*) are available for free distribution and as long as the supply lasts may be obtained by addressing the Surgeon General, United States Public Health Service, Washington, D. C. Those publications marked with an asterisk are not available for free distribution but, unless stated to be "out of print", may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., *at the prices noted.* (No remittances should be sent to the Public Health Service.)

Periodicals

Public Health Reports (weekly), January–June, vol. 50, nos. 1 26, pages 1 to 890.

Venereal Disease Information (monthly), January–June, vol. 16, nos. 1–6, pages 1 to 222.

Reprints from the Public Health Reports

1665. Effects of the inhalation of asbestos dust on the lungs of asbestos workers. By A. J. Lanza, William J. McConnell, and J. William Fehnel. January 4, 1935. 12 pages.

1666. Milk-sanitation ratings of cities. Cities for which milk-sanitation ratings of 90 percent or more were reported by the State milk-sanitation authorities during the period January 1, 1933, to December 31, 1934. February 1, 1935. 4 pages.

1667. Biological products. Establishments licensed for the propagation and sale of viruses, serums, toxins, and analogous products. February 1, 1935. 6 pages.

1668. Selected papers on the medical services in the Federal prison system, with special reference to psychiatric problems. Presented at the conference held at Springfield, Mo., September 13–15, 1934. The role, organization, and function of psychiatric service in a correctional institution. By R. P. Hagerman, Wilson K. Dyer, and C. C. Limburg. November 9, 1934. The social viewpoint of psychiatric service in a correctional institution. By Amy N. Stannard. November 9, 1934. The personality factor in prison discipline. By F. G. Zerbst and D. E. Singleton. November 16, 1934. Problem neuroses and their management in a correctional institution. By M. J. Pescor. November 16, 1934. The constitutional psychopath as the warden's problem. By H. C. Hill. November 30, 1934. Psychiatric aspects of job placement. By J. G. Wilson. December 21, 1934. The educator's viewpoint of psychiatric service in a penal institution. By R. A. McGee. January 4, 1935. The administrator's viewpoint of psychiatric services in a correctional institution. By Joseph W. Sanford. January 18, 1935. The place of psychiatry in a coordinated correctional program. By F. Lovell Bixby. January 25, 1935. Principles of sanitation and hygiene for a correctional institution. By M. R. King. February 8, 1935. 46 pages.

1669. The effects of exposure to dust in two Georgia talc mills and mines. By Waldemar C. Dreessen and J. M. Dalla Valle. February 1, 1935. 13 pages.
1670. Endamoeba histolytica in washings from the hands and finger nails of infected persons. By Bertha Kaplan Spector, John W. Foster, and Nelson G. Glover. February 8, 1935. 2 pages.
1671. The family survey as a method of studying rural health problems. Brunswick-Greensville health administration studies, no. 3. By Elliott H. Pennell. February 15, 1935. 14 pages.
1672. Public Health Service publications. A list of publications issued during the period July–December 1934. February 15, 1935. 3 pages.
1673. A general view of the causes of illness and death at specific ages. Based on records for 9,000 families in 18 States visited periodically for 12 months, 1928–31. By Selwyn D. Collins. February 22, 1935. 19 pages.
1674. A comparative study of streptococcal immunity, produced in rabbits by heat-killed cultures, by active bacteriophage, and by inactivated bacteriophage. By Alice C. Evans. February 8, 1935. 17 pages.
1675. State and insular health authorities, 1934. Directory, with data as to appropriations and publications. March 1, 1935. 17 pages.
1676. The occurrence of infestations with E. histolytica associated with water-borne epidemic diseases. By A. V. Hardy and Bertha Kaplan Spector. March 8, 1935. 12 pages.
1677. Variations in physique and growth of children in different geographic regions of the United States. Physical measurement studies, no. 2. By Carroll E. Palmer and Selwyn D. Collins. March 8, 1935. 13 pages.
1678. Mottled enamel in Texas. By H. Trendley Dean, R. M. Dixon, and Chester Cohen. March 29, 1935. 18 pages; 2 plates.
1679. Public health nursing in a bi-county health department. Brunswick-Greensville health administration studies, no. 4. Prepared by Pearl McIver. April 5, 1935. 12 pages.
1680. Studies of sewage purification. I. Apparatus for the determination of dissolved oxygen in sludge-sewage mixtures. By E. J. Theriault and Paul D. McNamee April 5, 1935 10 pages
1681. Age incidence of illness and death considered in broad disease groups. Based on records for 9,000 families in 18 States visited periodically for 12 months, 1928–31. By Selwyn D. Collins. April 12, 1935. 19 pages.
1682. Sickness among male industrial employees during the final quarter of 1934 and the entire year. By Dean K. Brundage. April 26, 1935. 3 pages.
1683. Mortality in certain States during 1934, with comparative data for recent years. April 26, 1935. 10 pages.
1684. Relation of sickness to income and income change in 10 surveyed communities. Health and depression studies no. 1: Method of study and general results for each locality. By G. St. J. Perrott and Selwyn D. Collins. May 3, 1935. 28 pages.
1685. City health officers, 1934. Directory of those in cities of 10,000 or more population. May 10, 1935. 17 pages.
1686. Studies of sewage purification. II. A zooglea-forming bacterium isolated from activated sludge. By C. T. Butterfield. May 17, 1935. 13 pages; 4 plates.
1687. A communicable disease meter. A device for recording and comparing the current incidence of communicable diseases. By Robert Olesen. May 24, 1935. 10 pages.

1688. Prevention of intranasally-inoculated poliomyelitis of monkeys by instillation of alum into the nostrils. By Charles Armstrong and W. T. Harrison. May 31, 1935. 6 pages.
1689. Protection of mice against meningococcus infection by polyvalent antimeningococcic serum. By Sara E. Branham. June 7, 1935. 10 pages.
1690. The irritants in adhesive plaster. By Louis Schwartz and Samuel M. Peck. June 14, 1935. 9 pages.
1691. Benign lymphocytic choriomeningitis (acute aseptic meningitis). A new disease entity. By Charles Armstrong and Paul F. Dickens. June 21, 1935. 12 pages.
1692. Leprosy. The effect of a vitamin B_1 deficient diet on the incubation period of rat leprosy. By L. F. Badger and W. H. Sebrell. June 28, 1935. 9 pages.

Supplements to the Public Health Reports

113. Dilaudid (dihydromorphinone). A review of the literature and a study of its addictive properties. By M. R. King, C. K. Himmelsbach, and B. S. Sanders. 1935. 38 pages.
114. Information regarding quarantine and immigration for ship surgeons. 1935. 34 pages.

Reprints from Venereal Disease Information

49. What treatment in early syphilis accomplishes. Cooperative clinical studies in the treatment of syphilis. By John H. Stokes, Lida J. Usilton, Harold N. Cole, Joseph Earle Moore, Paul A. O'Leary, Udo J. Wile, Thomas Parran, Jr., and John McMullen. Vol. 15, no. 11. 24 pages.
50. The value of instructing the syphilis patient. By M. J. Exner. Vol. 16, no. 3. 6 pages.
51. Trend of syphilis and gonorrhea in the United States. By Lida J. Usilton. Vol. 16, no. 5. 18 pages.
52. The evaluation of serodiagnostic tests for syphilis in the United States. By H. S. Cumming, H. H. Hazen, Arthur H. Sanford, F. E. Senear, Walter M. Simpson, and R. A. Vonderlehr. Vol. 16, no. 6. 14 pages.

Public Health Bulletins

214. Report on the St. Louis outbreak of encephalitis. January 1935. 117 pages.
215. Skin hazards in American industry. Dermatitis in the rubber industry. By Louis Schwartz. Dermatitis in oil refining. By Louis Schwartz. Dermatitis in synthetic dye manufacturing. By Louis Schwartz. Dermatitis in candy making. By Louis Schwartz. Dermatitis among silk throwsters. By Louis Schwartz and Louis Tulipan. Dermatitis in the manufacture of linseed oil. By Louis Schwartz. Dermatitis due to perfume. By Louis Schwartz. Dermatitis due to pyrethrum contained in an insecticide. By Louis Schwartz. October 1934. 54 pages; 17 plates.
216. The potential problems of industrial hygiene in a typical industrial area in the United States. By J. J. Bloomfield, W. Scott Johnson, and R. R. Sayers. December 1934. 35 pages.
219. A survey of tuberculosis in Louisiana. By L. L. Lumsden. April 1935. 76 pages.

National Institute of Health Bulletins

163. Key-catalogue of parasites reported for carnivora (cats, dogs, bears, etc.), with their possible public health importance. By C. W. Stiles and Clara Edith Baker. December 1934. 310 pages.
164. Experimental studies on cancer. I. The influence of the parenteral administration of certain sugars on the pH of malignant tumors. By Carl Voegtlin, R. H. Fitch, Herbert Kahler, J. M. Johnson, and J. W. Thompson. II. The estimation of the hydrogen ion concentration of tissues in living animals by means of the capillary glass electrode. By Carl Voegtlin, Herbert Kahler, and R. H. Fitch. III. The influence of hydrogen ion concentration upon the reversal of proteolysis in oxygenated extracts of normal and neoplastic tissues. By Mary E. Maver, J. M. Johnson, and Carl Voegtlin. IV. A comparison of the growth of the Jensen rat sarcoma in subcutaneous and intramuscular transplants. By W. R. Earle and Carl Voegtlin. January 1935. 58 pages; 4 plates.

Miscellaneous Publications

10. Regulations for the sale of viruses, serums, toxins, and analogous products in the District of Columbia and in interstate traffic. Approved February 25, 1935, to supersede regulations issued March 13, 1934, and amendments thereto. 1935. 11 pages.
11. Official list of commissioned and other officers of the United States Public Health Service. Also a list of all stations of the Service. January 1, 1935. 61 pages.

Unnumbered Publications

Index to Public Health Reports, vol. 49, part 2 (July–December 1934). 1935 23 pages.

*National Negro Health Week program. This pamphlet is published annually, usually about the middle of March, for community leaders in an effort to suggest ways and means by which interested individuals and organizations may be organized for a concerted and effective attack upon the community's disease problems. Twenty-first annual observance. March 31 to April 7, 1935. 8 pages. Out of print.

*National Negro Health Week leaflet. 1935. 2 pages. Out of print.

*National Negro Health Week poster. 1935. Out of print.

DEATHS DURING WEEK ENDED JULY 13, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended July 13, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,679	7,163
Deaths per 1,000 population, annual basis	10.7	10.0
Deaths under 1 year of age	542	556
Deaths under 1 year of age per 1,000 estimated live births	50	51
Deaths per 1,000 population, annual basis, first 28 weeks of year	12.1	12.0
Data from industrial insurance companies:		
Policies in force	67,930,187	67,711,737
Number of death claims	12,499	12,966
Death claims per 1,000 policies in force, annual rate	9.6	10.0
Death claims per 1,000 policies, first 28 weeks of year, annual rate	10.3	10.5

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended July 20, 1935, and July 21, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 20, 1935, and July 21, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934
New England States:								
Maine		1			49	1	0	0
New Hampshire	1				1	69	0	0
Vermont					44	7	0	0
Massachusetts	5	8			98	126	1	5
Rhode Island					76	16	0	0
Connecticut	7	2	1		70	44	0	0
Middle Atlantic States:								
New York	16	16		[1] 3	925	254	8	3
New Jersey	5	10			309	484	0	8
Pennsylvania	28	28			553	569	7	2
East North Central States:								
Ohio	13	5	3	1	181	173	2	1
Indiana	7	13	13	10	20	48	1	0
Illinois	28	17	8	18	209	357	8	8
Michigan	7	11			619	77	4	0
Wisconsin	3	7	19	14	581	476	0	0
West North Central States:								
Minnesota	6	3		1	37	19	0	0
Iowa	12	6			18	40	8	0
Missouri [2]	27	16	17	6	35	36	4	2
North Dakota		10			13	73	0	0
South Dakota	2	1			8	15	0	0
Nebraska	5	2			11	2	0	0
Kansas	5	3	8	1	52	25	2	2
South Atlantic States:								
Delaware	1				12	2	1	0
Maryland [3] [4]	3	7	2	2	33	34	2	0
District of Columbia [4]	10	3	1	2	5	5	2	0
Virginia	8	17			37	211	2	1
West Virginia	9	9	13	3	17	68	2	0
North Carolina [2]	6	9		4	9	90	2	0
South Carolina [2]	4		58	44	1	22	1	0
Georgia [2]	17	3					0	0
Florida [2]	6	9			3	12	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 20, 1935, and July 21, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934
East South Central States:								
Kentucky	5	3		31	50	75	2	1
Tennessee	5	5	5	8	19	68	3	0
Alabama [2]	19	21	7	4	17	57	1	1
Mississippi [3]	12	3					0	2
West South Central States:								
Arkansas	3		3		4		0	0
Louisiana [2]	11	11	13	3	15	15	0	0
Oklahoma [5]	4	2	20	13	7	4	0	1
Texas [2]	23	41	11	57	15	176	1	1
Mountain States:								
Montana [4]	1	1			49	4	1	0
Idaho		1			3	2	0	0
Wyoming [4]	1				14	55	0	0
Colorado	9	8			32	74	1	1
New Mexico	1	1	3		3	39	0	0
Arizona						2	0	0
Utah [3]					5	2	0	0
Pacific States:								
Washington	1				75	36	0	1
Oregon [4]	2		3	8	53	14	1	0
California	34	20	12	16	294	140	2	3
Total	372	342	220	249	4,681	4,118	65	38
First 29 weeks of year	16,615	18,877	103,000	47,263	687,538	660,952	3,860	1, [illegible]

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934
New England States:								
Maine	0	0	4	6	0	0	4	6
New Hampshire	1	0	0	1	0	0	1	0
Vermont	0	0	7	6	0	0	0	0
Massachusetts	12	5	53	63	0	0	2	4
Rhode Island	2	0	7	3	0	0	0	0
Connecticut	3	0	6	7	0	0	2	0
Middle Atlantic States:								
New York	21	11	177	136	0	0	13	17
New Jersey	1	2	28	38	0	0	3	4
Pennsylvania	1	3	182	107	0	0	62	22
East North Central States:								
Ohio	1	4	74	67	0	0	7	10
Indiana	0	2	13	20	0	0	8	10
Illinois	2	4	166	102	1	0	18	45
Michigan	0	2	82	123	0	0	15	4
Wisconsin	1	0	83	63	10	6	6	2
West North Central States:								
Minnesota	0	0	43	27	4	0	23	0
Iowa	0	0	19	19	6	2	2	1
Missouri [2]	2	0	13	21	0	0	25	63
North Dakota	0	0	15	5	0	0	1	1
South Dakota	0	0	4		3	0	0	1
Nebraska	0	0	10	1	3	2	0	0
Kansas	0	1	17	11	7	1	13	10
South Atlantic States:								
Delaware	1	0	2		0	0	3	5
Maryland [3] [4]	0	0	17	12	0	0	18	11
District of Columbia [4]	1	2	3	4	0	0	1	0
Virginia	72	1	17	18	0	0	46	38
West Virginia	0	1	11	21	0	0	16	23
North Carolina [3]	48	1	19	10	1	0	37	24
South Carolina [2]	1	0	2	2	0	0	26	58
Georgia [2]	1	0	1	2	0	0	61	77
Florida [3]	0	0	3		0	0	3	3

See footnotes at end of table.

***Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 20, 1935, and July 21, 1934*—Continued**

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934	Week ended July 20, 1935	Week ended July 21, 1934
East South Central States:								
Kentucky	5	1	12	12	0	0	39	41
Tennessee	3	0	11	18	0	1	38	82
Alabama [2]	3	1	15	6	0	0	16	57
Mississippi [3]	0	1	12	12	0	0	17	21
West South Central States:								
Arkansas	1	0	4	1	5	0	34	16
Louisiana [2]	7	0	4	6	0	0	24	31
Oklahoma [5]	0	0	4	6	0	0	27	63
Texas [2]	1	11	17	40	0	15	32	105
Mountain States:								
Montana [4]	0	3	4	3	8	0	1	2
Idaho	0	1	1	2	0	0	0	1
Wyoming [4]	0	0	11	2	10	0	1	0
Colorado	0	1	29	8	0	0	4	3
New Mexico	0	0	6	3	0	0	6	9
Arizona	0	4	4		0	0	2	5
Utah [3]	0	0	34	1	0	0	2	1
Pacific States:								
Washington	0	12	11	10	23	5	3	6
Oregon [4]		1	27	19	1	0	3	7
California	35	154	73	81	3	0	7	9
Total	227	229	1,357	1,131	85	32	672	898
First 29 weeks of year	1,599	2,923	176,437	144,382	5,106	3,642	6,296	7,324

[1] New York City only.
[2] Typhus fever, week ended July 20, 1935, 49 cases, as follows: Missouri, 1, North Carolina, 1; South Carolina, 2; Georgia, 20; Florida, 1; Alabama, 14, Louisiana, 1; Texas, 9.
[3] Week ended earlier than Saturday.
[4] Rocky Mountain spotted fever, week ended July 20, 1935, 18 cases, as follows: Maryland, 3; District of Columbia, 1; Montana, 6; Wyoming, 7, Oregon, 1.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June 1935										
Arkansas		24	73	356	110	111		9	3	83
Georgia	9	31	64	484	39	99	2	24	13	153
Idaho	3		4		18		1	18		5
Illinois	38	197	79	9	4,500		6	3,182	8	44
Iowa	7	30	7	2	479		0	232	30	3
Kansas	6	22	39	4	934		3	113	74	13
Louisiana	3	45	35	196	145	20	16	25	6	71
Maryland	3	18	9	1	378		1	190	0	17
Massachusetts	2	36		2	1,486	1	6	742	0	6
Michigan	9	32	4	3	8,648		3	703	0	25
Minnesota	8	31	7		812		4	656	20	68
New Mexico	2	5	9	6	34		1	28	2	14
North Carolina	13	36	3		157	133	198	58	6	87
Ohio	34	83	74	6	5,277		5	1,171	4	56
Oregon	10	10	68	1	620		1	83	19	7
Pennsylvania	32	137		1	6,714		5	1,539	0	40
Rhode Island	2	3			1,739		0	40	0	3
South Carolina		68	322	1,061	60	318	5	4	0	145
Texas	10	126	237	2,000	232	57	8	158	47	112
West Virginia	9	45	62		547		1	124	0	30

June 1935

	Cases
Actinomycosis:	
Minnesota	1
Anthrax:	
Pennsylvania	1
Texas	3
Chicken pox:	
Arkansas	36
Georgia	46
Illinois	1,023
Iowa	176
Kansas	89
Louisiana	7
Maryland	350
Massachusetts	1,051
Michigan	729
Minnesota	254
New Mexico	69
North Carolina	190
Ohio	1,180
Oregon	156
Pennsylvania	2,315
Rhode Island	85
South Carolina	85
Texas	252
West Virginia	57
Dengue:	
Georgia	42
North Carolina	1
South Carolina	2
Texas	9
Diarrhea:	
Maryland	31
South Carolina	1,278
Diarrhea and enteritis:	
Ohio (under 2 years)	7
Dysentery:	
Georgia (amoebic)	22
Georgia (bacillary)	76
Illinois (amoebic)	11
Illinois (amoebic carriers)	21
Illinois (bacillary)	1
Louisiana (amoebic)	14
Louisiana (bacillary)	1
Maryland (bacillary)	20
Massachusetts (bacillary)	1
Michigan (amoebic)	5
Minnesota (bacillary)	1
New Mexico (amoebic)	1
New Mexico (bacillary)	1
North Carolina (bacillary)	4
Oregon (amoebic)	1
Pennsylvania (amoebic)	1
Texas (bacillary)	97
Epidemic encephalitis:	
Georgia	2
Illinois	8
Iowa	1
Kansas	2
Louisiana	2
Maryland	1
Michigan	2
Minnesota	5
New Mexico	1
Ohio	2
Pennsylvania	7
South Carolina	2
Texas	2
Food poisoning:	
Ohio	21
German measles:	
Illinois	2,306
Iowa	244
Kansas	116
Maryland	453
Massachusetts	5,898
Michigan	445
New Mexico	38
North Carolina	27
Ohio	1,148
Pennsylvania	4,104
Rhode Island	2
Hookworm disease:	
Georgia	294
Louisiana	12
South Carolina	97
Impetigo contagiosa:	
Kansas	1
Maryland	9
Oregon	5
Lead poisoning:	
Michigan	15
Ohio	9
Pennsylvania	1
Leprosy:	
Louisiana	1
Mumps:	
Arkansas	46
Georgia	141
Idaho	8
Illinois	475
Iowa	462
Kansas	291
Louisiana	2
Maryland	105
Massachusetts	406
Michigan	470
New Mexico	47
Ohio	1,048
Oregon	287
Pennsylvania	1,869
Rhode Island	89
South Carolina	189
Texas	301
West Virginia	10
Ophthalmia neonatorum:	
Illinois	5
Maryland	2
Massachusetts	152
Minnesota	2
Ohio	90
Pennsylvania	4
South Carolina	7
Paratyphoid fever:	
Georgia	2
Illinois	3
Kansas	2
Louisiana	1
Massachusetts	1
Michigan	1
Ohio	1
South Carolina	6
Texas	7
Puerperal septicemia:	
New Mexico	6
Ohio	5
Rabies in animals:	
Illinois	32
Kansas	5
Louisiana	12
Maryland	1
Massachusetts	21
Michigan	9
Oregon	1
Rhode Island	1
South Carolina	47
Rabies in man:	
Georgia	1
Illinois	1
Rocky Mountain spotted fever:	
Illinois	1
Iowa	1
Maryland	7
North Carolina	3
Oregon	9
Scabies:	
Maryland	1
Oregon	5
Screw worm infection:	
Georgia	1
Septic sore throat:	
Georgia	25
Illinois	2
Kansas	5
Louisiana	4
Maryland	13
Massachusetts	16
Michigan	13
New Mexico	1
North Carolina	3
Ohio	216
Oregon	4
Rhode Island	2
Tetanus:	
Georgia	5
Illinois	3
Kansas	1
Louisiana	4
Maryland	3
Massachusetts	1
Michigan	2
Ohio	1
South Carolina	2
Trachoma:	
Arkansas	3
Illinois	24
Massachusetts	2
Michigan	6
Minnesota	2
Ohio	1
Oregon	1
Pennsylvania	1
Trichinosis:	
Massachusetts	1
Michigan	2
Oregon	2
Tularaemia:	
Arkansas	5
Georgia	7
Illinois	1
Louisiana	2
Minnesota	3
Texas	5
Typhus fever:	
Georgia	37
Louisiana	1
North Carolina	2
South Carolina	2
Texas	21
Undulant fever:	
Georgia	9
Illinois	12
Iowa	9
Kansas	10
Louisiana	8
Maryland	4
Massachusetts	3
Michigan	7
Minnesota	11
New Mexico	1
North Carolina	2
Ohio	11
Oregon	1
Pennsylvania	5
Rhode Island	2
Texas	7
Vincent's infection:	
Illinois	12
Kansas	2
Maryland	13
Michigan	13
Oregon	4
Whooping cough:	
Arkansas	85
Georgia	172
Idaho	6
Illinois	907
Iowa	82
Kansas	309
Louisiana	18
Maryland	104
Massachusetts	361
Michigan	1,019
Minnesota	115
New Mexico	68
North Carolina	1,179
Ohio	486
Oregon	54
Pennsylvania	1,217
Rhode Island	41
South Carolina	234
Texas	374
West Virginia	121

PLAGUE-INFECTED GROUND SQUIRRELS IN LASSEN COUNTY, CALIF., AND WALLOWA COUNTY, OREG.

The Director of Public Health of California has reported that plague infection has been proved in a ground squirrel received at the laboratory on June 22, 1935, from a ranch in Lassen County, Calif., about 15 miles east and 11 miles south of Adin.

Plague infection was proved on June 17 and July 18, 1935, in 2 ground squirrels (*Citellus oregonus* and *Citellus columbianus*). These squirrels were found dead at points in Wallowa County, Oreg., approximately 5 and 6 miles north of Wallowa.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 13, 1935

This table summarizes the reports received regularly from a selected list of 125 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	----	0	2	0	0	0	0	1	2	21
New Hampshire:											
Concord	0	----	0	0	0	1	0	0	0	0	11
Manchester	0	----	0	0	0	0	0	1	0	0	13
Nashua	0	----	----	0	----	0	0	----	0	0	----
Vermont:											
Barre	0	----	0	0	0	0	0	0	0	0	----
Burlington	0	----	0	0	0	0	0	0	0	1	15
Rutland	0	----	0	2	1	0	0	0	0	0	5
Massachusetts:											
Boston	5	----	1	33	15	22	0	5	0	6	202
Fall River	0	----	0	0	0	3	0	1	1	0	22
Springfield	0	----	0	11	0	2	0	2	2	0	30
Worcester	0	----	0	22	2	8	0	2	0	2	45
Rhode Island:											
Pawtucket	0	----	0	0	0	0	0	0	0	0	13
Providence	2	----	0	92	2	5	0	1	0	18	50
Connecticut:											
Bridgeport	2	----	0	17	0	5	0	1	0	1	21
Hartford	0	----	0	3	1	0	0	3	0	5	38
New Haven	0	1	0	3	1	1	0	0	1	4	35
New York:											
Buffalo	0	----	1	12	5	13	0	7	0	34	100
New York	25	3	1	599	78	76	0	76	7	142	1,299
Rochester	0	----	0	11	4	1	0	1	0	11	69
Syracuse	0	----	0	219	1	7	0	0	0	22	48
New Jersey:											
Camden	0	1	1	0	0	4	0	0	0	4	37
Newark	0	----	0	60	4	6	0	5	0	55	100
Trenton	0	----	0	5	1	1	0	0	0	0	35
Pennsylvania:											
Philadelphia	5	----	0	30	16	21	0	30	9	43	471
Pittsburgh	2	2	2	25	13	16	0	3	1	21	116
Reading	0	----	0	14	0	0	0	2	0	3	20
Scranton	0	----	0	0	----	2	0	----	0	0	----
Ohio:											
Cincinnati	2	----	0	1	9	1	0	12	0	3	130
Cleveland	2	----	0	172	8	8	0	15	2	54	192
Columbus	0	----	0	6	3	7	0	7	1	3	69
Toledo	0	----	0	18	1	[illegible]	0	3	0	8	74
Indiana:											
Anderson	0	----	0	0	0	0	0	0	0	0	6
Fort Wayne	0	----	0	0	0	0	0	1	0	0	15
Indianapolis	3	----	0	8	4	6	0	6	0	18	----
South Bend	0	----	0	1	0	1	0	0	0	2	19
Terre Haute	0	----	0	2	0	0	0	0	0	0	25

City reports for week ended July 13, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Illinois:											
Alton	2		0	0	1	0	0	0	0	1	9
Chicago	10	4	1	202	42	89	0	41	3	118	648
Elgin	0		0	0	0	2	0	0	0	8	9
Moline	0		0	0	0	0	0	0	0	2	11
Springfield	0		0	0	0	2	0	0	1	4	21
Michigan:											
Detroit	0		0	100	11	16	0	17	2	191	238
Flint	1		0	2	3	3	0	2	0	5	28
Grand Rapids	0		0	15	0	4	0	0	0	23	25
Wisconsin:											
Kenosha	0		0	3	0	0	1	0	0	5	6
Milwaukee	0	1	1	256	6	21	0	6	0	47	91
Racine	0		0	43	0	9	0	0	0	18	12
Superior	0		0	1	0	0	0	0	0	1	8
Minnesota:											
Duluth	0		0	8	0	4	0	1	6	5	27
Minneapolis	1		0	10	5	18	0	3	37	3	111
St. Paul	0		0	14	3	6	2	6	0	4	61
Iowa:											
Cedar Rapids	0		0	1		0	0		0	8	
Davenport	0			0		0	0		0	0	
Des Moines	1		0	0	0	1	0	0	0	1	24
Sioux City	0			2		0	3		0	6	
Waterloo	1			0		3	0		0	3	
Missouri:											
Kansas City	5		0	1	4	5	0	4	0	1	99
St. Joseph	0		0	0	4	0	0	0	0	0	34
St. Louis	6		0	3	2	2	0	5	4	7	204
North Dakota:											
Fargo	0		0	0	2	2	0	0	0	2	7
Grand Forks	0			1		0	0		0	0	
Minot	0		0	2	0	1	0	0	0	0	3
South Dakota:											
Aberdeen	0			7		0	0		0	0	
Nebraska:											
Omaha	1		0	5	3	1	0	2	0	0	53
Kansas:											
Lawrence	0		0	4	0	0	0	0	0	0	4
Topeka	0		0	5	2	1	0	0	0	14	18
Wichita	1		0	2	1	0	0	1	0	4	28
Delaware:											
Wilmington	2		0	0	2	0	0	1	0	0	10
Maryland:											
Baltimore	3		0	3	13	16	0	15	1	25	203
Cumberland	0		0	1	1	0	0	0	1	0	8
Frederick	0		0	0	0	0	0	0	0	0	4
District of Columbia:											
Washington	15		0	10	4	7	0	14	1	12	148
Virginia:											
Lynchburg	0		0	0	0	0	0	1	1	57	9
Norfolk	0		0	0	3	0	0	2	3	1	31
Richmond	0		0	4	2	1	0	4	1	0	44
Roanoke	0		0	2	0	0	0	1	0	0	14
West Virginia:											
Charleston	1		0	0	0	0	0	0	0	0	6
Huntington	0			0		0	0		0	0	
Wheeling	0		0	6	0	4	0	0	2	2	26
North Carolina:											
Gastonia	0		0	0	0	0	0	0	0	1	2
Raleigh											
Wilmington	0		0	0	1	0	0	0	0	0	13
Winston-Salem	0		0	0	0	0	0	0	0	2	16
South Carolina:											
Charleston	0	1	1	0	0	0	0	1	3	0	11
Columbia	0		0	0	0	0	0	0	0	0	6
Florence	0		0	0	0	0	0	0	0	1	6
Greenville	0		0	0	2	1	0	0	0	0	13
Georgia:											
Atlanta	6		0	2	6	0	0	7	0	16	88
Brunswick	0		0	0	0	0	0	0	0	0	7
Savannah	0		0	0	0	0	0	4	0	1	32
Florida:											
Miami	1		0	2	1	0	0	1	2	2	23
Tampa	2		0	0	0	1	0	1	1	1	22

City reports for week ended July 13, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Kentucky:											
Ashland											
Covington	0		0	0	0	1	0	2	0	0	13
Lexington	0		0	1	0	2	0	0	0	0	18
Louisville	0	1	0	4	3	8	0	2	1	4	63
Tennessee:											
Knoxville	0		0	0	0	0	0	0	2	0	20
Memphis	2		0	0	7	1	0	5	0	19	116
Nashville	0		0	0	4	2	0	4	1	7	56
Alabama:											
Birmingham	1		0	1	0	0	0	2	1	2	53
Mobile	0		0	0	0	1	0	1	0	0	16
Montgomery	2			0		0	0		2	0	
Arkansas:											
Fort Smith											
Little Rock	0		0	0	4	1	0	2	0	0	8
Louisiana:											
Lake Charles	0		0	0	0	0	0	0	0	1	3
New Orleans	14	1	0	2	10	0	0	12	1	2	155
Shreveport	1		0	0	6	0	0	1	4	0	52
Oklahoma:											
Oklahoma City	0	5	0	0	4	0	0	1	1	0	42
Tulsa	0			0		1	0		0	4	
Texas:											
Dallas	7		0	2	2	1	0	2	1	6	57
Fort Worth	0		0	0	5	0	0	3	0	0	51
Galveston	0		0	0	4	0	0	0	0	0	24
Houston	4		0	2	6	2	0	5	2	0	81
San Antonio											
Montana:											
Billings	1		0	3	0	0	0	0	0	0	15
Great Falls	0		0	0	1	0	0	0	0	2	4
Helena	0		0	1	0	0	0	0	0	7	2
Missoula	5		0	0	1	0	0	0	0	0	11
Idaho:											
Boise	0		0	0	0	0	0	0	0	1	5
Colorado:											
Colorado Springs	0		0	0	1	4	0	3	0	0	9
Denver	3		0	14	3	12	0	5	0	2	69
Pueblo	0		0	1	0	4	0	2	1	2	9
New Mexico:											
Albuquerque	0		0	0	0	0	0	2	1	4	18
Utah:											
Salt Lake City	0		0	0	1	17	0	0	0	40	26
Nevada:											
Reno	0		0	0	1	1	0	0	0	0	3
Washington:											
Seattle	0		0	58	4	3	1	2	0	2	81
Spokane	0		0	2	2	5	0	0	0	3	29
Tacoma	0		0	0	3	5	9	1	0	1	26
Oregon:											
Portland	0		0	17	3	9	0	2	0	0	74
Salem	0			0		1	0		0	0	
California:											
Los Angeles	9	16	0	45	11	16	1	25	1	9	309
Sacramento	1		0	22	0	5	0	0	2	3	21
San Francisco	0		1	47	7	13	0	5	0	18	144

City reports for week ended July 13, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Maine:				Maryland:			
Portland	1	0	0	Baltimore	4	2	0
Vermont:				District of Columbia:			
Barre	1	0	0	Washington	1	0	3
Massachusetts:				Virginia:			
Fall River	1	0	0	Norfolk	2	0	2
Worcester	1	0	1	Richmond	0	0	5
Rhode Island:				Roanoke	0	0	1
Providence	1	0	0	West Virginia:			
New York:				Wheeling	1	0	0
New York	6	4	13	South Carolina:			
Pennsylvania:				Florence	0	0	1
Philadelphia	0	0	1	Greenville	0	1	0
Pittsburgh	1	0	0	Florida:			
Ohio:				Tampa	0	1	0
Cincinnati	1	1	0	Kentucky:			
Columbus	3	2	0	Louisville	0	0	1
Indiana:				Tennessee:			
Indianapolis	1	0	0	Memphis	0	1	0
Illinois:				Alabama:			
Chicago	7	4	1	Mobile	0	0	1
Michigan:				Arkansas:			
Detroit	1	0	0	Little Rock	1	2	0
Wisconsin:				Louisiana:			
Milwaukee	1	0	0	New Orleans	0	0	2
Racine	0	0	1	Colorado:			
Minnesota:				Denver	2	0	0
Minneapolis	1	1	0	Oregon:			
Iowa:				Portland	1	0	0
Sioux City	1	1	0	California:			
Missouri:				Los Angeles	2	1	8
Kansas City	0	1	0				
St. Louis	1	3	0				

Epidemic encephalitis.—Cases: New York, 3; Newark, 1; Pittsburgh, 1; Chicago, 1; St. Louis, 2; Wichita, 1.
Pellagra.—Cases: Boston, 1; Toledo, 1; Lynchburg, 1; Atlanta, 1; Savannah, 1; Knoxville, 1; Memphis, 3; New Orleans, 2; Los Angeles, 6.
Typhus fever.—Cases: Charleston, S. C., 1; Atlanta, 1; Savannah, 2; Tampa 1.
Dengue.—Cases: Miami, 1.
Rabies in man.—Deaths: Birmingham, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended June 29, 1935.—During the 2 weeks ended June 29, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	1					2
Chicken pox		4	1	168	593	83	59	11	127	1,046
Diphtheria		5	3	30	17	21	3	1	1	81
Dysentery				10					1	11
Erysipelas		1		8	8	2			2	21
Influenza	2		1		5	1			1	10
Measles		16	73	679	3,831	165	147	201	356	5,468
Mumps		43			234	225	23	6	21	552
Paratyphoid fever					1		1			2
Pneumonia	3	2			7		3		3	18
Poliomyelitis				1				1		2
Scarlet fever	2	47	4	261	217	37	12	6	30	625
Trachoma						1	7			8
Tuberculosis	2	12	19	117	94	33	81	2	35	395
Typhoid fever		4	1	21	6	1	3	2	9	47
Undulant fever					3					3
Whooping cough		13	3	64	205	66	107	9	52	519

IRISH FREE STATE

Vital statistics—First quarter 1935.—The following statistics for the Irish Free State for the quarter ended March 31, 1935, are taken from the Quarterly Return of Marriages, Births, and Deaths, issued by the Registrar General, and are provisional:

	Number	Rates per 1,000 population		Number	Rates per 1,000 population
Population	3,033,000		Deaths from—Continued		
Marriages	3,805	5.00	Diphtheria	116	
Births	14,417	19.00	Influenza	326	.43
Total deaths	11,381	15.00	Measles	114	
Deaths under 1 year of age	1,125	(1)	Puerperal sepsis	17	[2] 1.18
Deaths from:			Scarlet fever	21	
Cancer	822	1.08	Tuberculosis (all forms)	959	1.26
Diarrhea and enteritis (under 2 years of age)	109		Typhoid fever	11	
			Whooping cough	46	

[1] Deaths under 1 year per 1,000 births, 78.
[2] Per 1,000 births.

ITALY

Communicable diseases—4 weeks ended May 26, 1935.—During the 4 weeks ended May 26, 1935, cases of certain communicable diseases were reported in Italy, as follows:

Disease	Apr. 29–May 5		May 6–12		May 13–19		May 20–26	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	7	7	3	3	8	8	9	7
Cerebrospinal meningitis	22	20	15	13	18	16	11	9
Chicken pox	478	174	520	178	510	180	569	178
Diphtheria and croup	500	252	457	222	341	187	452	196
Dysentery	9	6	3	3	7	5	7	7
Hookworm disease	6	5	7	5	13	7	19	8
Lethargic encephalitis	2	2			2	2	1	1
Measles	2,426	431	2,704	462	2,746	431	2,870	448
Paratyphoid fever	23	18	31	29	29	28	39	28
Poliomyelitis	12	12	4	4	8	8	14	14
Puerperal fever	29	26	27	25	36	32	31	30
Scarlet fever	343	120	388	140	325	130	424	133
Typhoid fever	176	114	183	111	191	124	212	119
Undulant fever	101	67	81	52	117	69	104	60
Whooping cough	311	88	358	110	369	103	326	104

JAMAICA

Communicable diseases—4 weeks ended July 13, 1935.—During the 4 weeks ended July 13, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		3	Puerperal fever		1
Chicken pox	5	21	Scarlet fever		1
Dysentery	3	1	Tuberculosis	53	91
Erysipelas	1		Typhoid fever	20	83
Leprosy		2			

VIRGIN ISLANDS

Notifiable diseases—April–June 1935.—During the months of April, May, and June 1935, cases of certain notifiable diseases were reported in the Virgin Islands, as follows:

Disease	April	May	June	Disease	April	May	June
Chicken pox	1			Malaria			1
Filariasis	4	1	3	Pellagra	1	2	
Gonorrhea	6	3	5	Poliomyelitis		2	
Hookworm disease	1	1	2	Syphilis	8	12	3
Leprosy	1			Tuberculosis			1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for July 26, 1935, pp 967-983 A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Aug 30, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month)

Plague

Belgian Congo—Blukwa region—Ituri.—During the week ended July 13, 1935, 1 case of plague with 1 death was reported at Ituri, Blukwa region, Belgian Congo.

Iraq—Baghdad.—During the week ended June 29, 1935, 1 case of plague was reported at Baghdad, Iraq.

United States.—A report of plague-infected ground squirrels in California and Oregon appears on page 1009 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Alaska—Juneau.—According to information dated July 22, 1935, 7 cases of smallpox had been reported at Juneau, Alaska. Vaccination certificates are required of all travelers leaving.

Chile—Chuquicamata.—A report dated July 19, 1935, states that 1 case of smallpox has been reported at Chuquicamata, Chile, infection originating in Bolivia. Vaccination is being carried on.

Siam—Bangkok.—During the week ended July 6, 1935, 4 cases of smallpox with 2 deaths were reported at Bangkok, Siam.

Yellow Fever

Brazil - Minas Geraes State.—According to information dated July 22, 1935, yellow fever has been reported in Brazil, as follows: 1 case at Rio Verde, and 1 case at Araguary, both in Minas Geraes State.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

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PUBLIC HEALTH REPORTS

VOL. 50 AUGUST 9, 1935 NO. 32

THE CONTROL OF COMMUNICABLE DISEASES

Report of a Committee of the American Public Health Association

In October 1916 a committee of the Health Officers' Section of the American Public Health Association was appointed to prepare standard regulations for the administrative control of the communicable diseases for which notification is usually required by State and municipal health authorities throughout the United States. The report of this committee was published in Public Health Reports, volume 32, no. 41, October 12, 1917.

This report was revised during 1926 by the successor of the original committee, to reconcile it with advances in the medical sciences in the previous 10 years. The revised report, approved by the American Public Health Association on October 14, 1926, and officially approved by the United States Public Health Service, was published in the Public Health Reports, volume 41, no. 51, December 17, 1926.

The general form of presentation and much of the matter of the 1926 revision was used in the Report of the Committee on Communicable Disease Control of the White House Conference, published in 1931.

The present revision, necessitated by increase in medical knowledge and experience, has been made by the Subcommittee on Communicable Disease Control, of the Committee on Research and Standards of the American Public Health Association, and it has been officially approved by the United States Public Health Service.

The terms used are first defined. Each disease is briefly described with regard to its clinical and laboratory recognition, the etiological agent, the source of infection, the mode of transmission, the incubation period, the period of communicability, susceptibility and immunity, and prevalence.

Following this are offered methods of control—first, those affecting the individual, contacts, and immediate environment, and second, general and specific measures bearing upon the control or prevention of the disease in question.

Inasmuch as the laws under which various boards and departments of health operate require differences in the legal phraseology of rules, regulations, or sections of sanitary codes dealing with the control of

communicable diseases, the committee has refrained from preparing formal regulations under each disease. As the report is at present submitted, any health officer, board of health, or legislative body having the power to make rules or regulations, or to enact sections of sanitary codes dealing with the control of communicable diseases can, by reference to the description of the disease and recommendations for methods of control herewith proposed, prepare the necessary text upon which the educational and administrative acts of the health officer will be based.

The present committee is indebted, as its predecessors have been, for expert opinion and critical comment upon its provisional text, to many physicians and others, both within and without the Association, and acknowledgment of their contributions to the accuracy and completeness of the report in its present form is herewith gratefully expressed.

Haven Emerson, M. D., Chairman; Leon Banov, M. D., J. A. Doull, M. D.; A. R. Foley, M. D.; Donald T. Fraser, M. B.; John E. Gordon, M. D.; J. P. Leake, M. D.; Alton S. Pope, M. D.; Stanley W. Sayer, M. D.; Adolph Weinzirl, M. D.; C.-E. A. Winslow, Dr. P. H.; Subcommittee on Control of Communicable Diseases of the Committee on Research and Standards of the American Public Health Association.

Lists of Diseases

A

List of communicable diseases for which notification is usually required in the States and cities of the United States

Actinomycosis.
Ancylostomiasis (hookworm disease).
Anthrax.
Chicken pox (varicella).
Cholera.
Conjunctivitis, acute infectious.
Dengue.
Diphtheria.
Dysentery, amebic (amebiasis).
Dysentery, bacillary.
Encephalitis, infectious, lethargic and nonlethargic.
Favus.
German measles (rubella).
Glanders (farcy).
Gonorrhea.
Influenza.
Leprosy.
Malaria.
Measles (rubeola).
Meningococcus meningitis.
Mumps (parotitis).
Paratyphoid fever.
Plague, bubonic, septicemic, pneumonic.
Pneumonia, acute lobar.
Poliomyelitis.
Psittacosis.
Puerperal infection (puerperal septicemia).
Rabies.
Rocky Mountain spotted (or tick) fever.
Scarlet fever (scarlatina).
Septic sore throat (streptococcus throat infection).
Smallpox (variola).
Syphilis.
Tetanus.
Trachoma.
Trichinosis.
Tuberculosis, pulmonary.
Tuberculosis, other than pulmonary.
Tularaemia.
Typhoid fever.
Typhus fever.
Undulant fever (brucellosis).
Whooping cough.
Yellow fever.

Supplementary Lists

B

Communicable diseases or infestations occurring in the United States and Insular Possessions, but for which notification to the health authorities is not everywhere required

Ascariasis.
Common cold.
Coccidioidal granuloma.
Filariasis.
Ictero-hemorrhagic jaundice (Weil's disease).
Impetigo contagiosa.
Lymphogranuloma venereum (inguinale) and climatic bubo.[1]
Pediculosis.
Rat-bite fever (sodoku).
Relapsing fever.
Ringworm.
Scabies.
Schistosomiasis.
Vincent's infection (angina, stomatitis).
Yaws.

C

Diseases of concern to health officers because of their group or epidemic occurrence and the practicability of their prevention, and for these reasons often included among those notifiable to the health authority, but not to be considered communicable in the usual sense of the term

Botulism.
Food infections and poisonings.
Pellagra.

The committee adopted the following definitions of terms:

1. *Carrier.*—A person who, without symptoms of a communicable disease, harbors and disseminates the specific micro-organisms. As distinct from a carrier, the term "infected person" is used to mean a person in whose tissues the etiological agent of a communicable disease is lodged and produces symptoms.

2. *Cleaning.*—This term signifies the removal by scrubbing and washing, as with hot water, soap, and washing soda, of organic matter on which and in which bacteria may find favorable conditions for prolonging life and virulence; also the removal by the same means of bacteria adherent to surfaces.

3. *Contact.*—A "contact" is any person or animal known to have been sufficiently near an infected person or animal to have been presumably exposed to transfer of infectious material directly, or by articles freshly soiled with such material.

4. *Delousing.*—By delousing is meant the process by which a person and his personal apparel are treated so that neither the adults nor the eggs of *Pediculus corporis* or *Pediculus capitis* survive.

5. *Disinfection.*—By this is meant the destroying of the vitality of pathogenic micro-organisms by chemical or physical means.

When the word "concurrent" is used as qualifying disinfection, it indicates the application of disinfection immediately after the discharge of infectious material from the body of an infected person, or after the soiling of articles with such infectious discharges, all personal contacts with such discharges or articles being prevented prior to their disinfection.

When the word "terminal" is used as qualifying disinfection, it indicates the process of rendering the personal clothing and immediate physical environment of the patient free from the possibility of conveying the infection to others, at the time when the patient is no longer a source of infection.

6. *Disinfesting.*—By disinfesting is meant any process, such as the use of dry or moist heat, gaseous agents, poisoned food, trapping, etc., by which insects and animals known to be capable of conveying or transmitting infection may be destroyed.

7. *Education in personal cleanliness.*—This phrase is intended to include all the various means available to impress upon all members of the community, young and old, and especially when communicable disease is prevalent or during epidemics, by spoken and printed word, and by illustration and suggestion, the necessity of:

(1) Keeping the body clean by sufficiently frequent soap and water baths.

(2) Washing hands in soap and water after voiding bowels or bladder and always before eating.

[1] This title does not include granuloma venereum (inguinale), which is a different clinical condition.

(3) Keeping hands and unclean articles, or articles which have been used for toilet purposes by others, away from mouth, nose, eyes, ears, and genitalia.

(4) Avoiding the use of common or unclean eating, drinking, or toilet articles of any kind, such as towels, handkerchiefs, hairbrushes, drinking cups, pipes, etc.

(5) Avoiding close exposure of persons to spray from the nose and mouth, as in coughing, sneezing, laughing, or talking.

8. *Fumigation.*—By fumigation is meant a process by which the destruction of insects, as mosquitoes and body lice, and animals, as rats, is accomplished by the employment of gaseous agents.

9. *Isolation.*[2]—By isolation is meant the separating of persons suffering from a communicable disease, or carriers of the infecting micro-organism, from other persons, in such places and under such conditions as will prevent the direct or indirect conveyance of the infectious agent to susceptible persons.

10. *Quarantine.*[2]—By quarantine is meant the limitation of freedom of movement of persons or animals who have been exposed to communicable disease for a period of time equal to the longest usual incubation period of the disease to which they have been exposed.

It is still considered necessary to require strict isolation of the patient for the period of communicability, and quarantine or immunization of contacts in certain diseases, notably smallpox. However, in some other diseases, such as poliomyelitis and encephalitis, isolation of the patient has but little apparent effect in limiting the spread of the disease, and the period of communicability is not known with reasonable accuracy in any given case.

Case-to-case infection is relatively infrequent in these latter two diseases; and yet the patient must be regarded as a potential source of infection and suitable precautions must be taken, even if these barriers to transmission of the disease are but partially effective. Uncertainty as to the exact duration of the period of communicability does not justify neglect of reasonable isolation measures but rather adds to our obligation to educate patients, the family, and the attending physician in the advantages to be had from separating the sick from the well, and in taking precautionary measures voluntarily when the presence of a communicable disease is suspected and before a diagnosis is established, after the official period of isolation is past, and generally during the epidemic prevalence of such diseases in the community.

The five specific objectives of personal cleanliness as defined above (7), if conscientiously attempted, will materially aid in reducing the amount and frequency of infection.

Isolation of a communicable disease from visitors is often of benefit to the patient as well as a protection to others; quiet, freedom from the excitement and fatigue of visits, and complete rest are important factors in the medical and nursing management of such patients and directly contribute to recovery.

11. *Renovation.*—By renovation is meant, in addition to cleansing, such treatment of the walls, floors, and ceilings of rooms or houses as may be necessary to place the premises in a satisfactory sanitary condition.

12. *Report of a disease.*—By report of a disease is meant the notification to the Health Department and, in the case of communicable disease in animals, also to the respective Department of Agriculture which has immediate jurisdiction, that a case of communicable disease exists or is suspected of existing in a specified person or animal at a given address.

13. *Susceptible.*—A "susceptible" is a person or animal who is not known to have become immune to the particular disease in question by natural or artificial process.

14. *Virus, filterable.*—The term "filterable virus" as defining the etiological agent of certain diseases is used in the sense of a causal agent differentiated from other kinds of infectious agents such as bacteria, protozoa, etc. Many of these filterable viruses can be grown *in vitro* in the presence of living susceptible cells, and such cultures will produce regularly typical diseases in animals and in man. The term "filterable virus" has a significance comparable to that of bacterium, spirochete, or protozoon. The term "filterable virus" is as definite a description of an etiological agent as is the statement that the typhoid bacillus causes typhoid fever. The idea conveyed by the statement that a filterable virus is the etiological

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[2] In view of the various ambiguous and inaccurate uses to which the words "isolation" and "quarantine" are not infrequently put, it has seemed best to adopt arbitrarily the word "isolation" as describing the limitation put upon the movements of the known sick or "carrier" individual or animal, and the word "quarantine" as describing the limitations put upon exposed or "contact" individuals.

agent is that the cause of this disease is known, even though present knowledge does not permit further precision in distinguishing among filterable viruses except by reference to the name of the disease produced by each.

The items considered necessary for presentation by the committee with regard to each disease are the following:

1. Recognition of the disease; clinical criteria; laboratory verification.
2. Etiological agent.
3. Source of infection.
4. Mode of transmission.
5. Incubation period.
6. Period of communicability.
7. Susceptibility and immunity.
8. Prevalence.
9. Methods of control:
    - A. The infected individual, contacts, and environment.
        1. Recognition of the disease and reporting.
        2. Isolation.
        3. Concurrent disinfection.
        4. Terminal disinfection.
        5. Quarantine.
        6. Immunization.
        7. Investigation of source of infection.
    - B. General measures.
    - C. Epidemic measures (occasionally requiring separate mention).

Therapy, whether nonspecific or specific, is not considered to come within the scope of administrative control of communicable diseases, except in a few instances in which there is obligation or authority to provide materials and services for the treatment of infected individuals with the object of abbreviating the duration of the communicable stage of the disease. Wherever specific therapeutic products are best, or only, available through the facilities or funds of the Department of Health, the provision of these, as well as the provision of laboratory diagnostic aids, is a recognized function of the Department of Health in the interest of early, accurate, and effective treatment of infected persons.

Numerous products used in the treatment of, or for the development of immunity against, communicable disease are supplied by many State and city health departments from their own laboratories or by purchase from commercial sources, such as those used in diphtheria, smallpox, tetanus, rabies, meningococcus meningitis, syphilis, pneumonia of certain types, etc. Procedures of this type have not in general been listed in the present draft, since we interpret our topic as primarily the control of the spread of communicable diseases.

IMPORTANT MEASURES IN BOLD-FACED TYPE

Certain measures in the control of some diseases are of particular importance, on account either of their efficiency in preventing the disease or of the danger of its spread if they are neglected, and also on account of their proved practicability. These are emphasized in the text by being printed in **bold-faced type.**

Diseases in List A

Actinomycosis

1. *Recognition of the disease.*—A local or general, acute or chronic suppurative process combined with growth of connective tissue, and characterized by the presence in the lesions of vegetations or colonies of the specific microorganism, identifiable by microscopic examination of discharges from the lesions.

2. *Etiological agent.—Actinomyces bovis.*
3. *Source of infection.*—The nasal and bowel discharges and the infected material from lesions in human and animal cases of the disease. Uncooked meat from infected animals may serve as a source of infection.
4. *Mode of transmission.*—Principally by grains, grasses, and other cattle fodder, and stable bedding contaminated by discharges from lesions of the disease, infecting abrasions or wounds of oral cavity or body surface. It is not probable that the disease is transmitted from man to man. It may be transmitted from animal to man, but only indirectly through infection of oral or skin wounds by contaminated materials.
5. *Incubation period.*—Undetermined and variable.
6. *Period of communicability.*—As long as open lesions remain, as proved by the presence of the infectious agent on microscopic or cultural tests.
7. *Susceptibility and immunity.*—Susceptibility in cattle and man is general. Acquired immunity does not follow occurrence of the disease in man, and artificial immunity is not practicable.
8. *Prevalence.*—Rare among humans. Most likely to be found among persons suspected of having pulmonary tuberculosis and among persons occupied with cattle.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms, confirmed by microscopic examination of discharges from the lesions.
      2. Isolation: None, provided the patient is under adequate medical supervision.
      3. Concurrent disinfection: Of discharges from lesions and articles soiled therewith.
      4. Terminal disinfection: By thorough cleansing.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Should be sought in diseased cattle.

   B. General measures:
      1. Avoidance of the practice of chewing straws, grains, or grasses, and observance of hygiene of oral cavity.
      2. Inspection of meat, with condemnation of carcasses or infected parts of carcasses of infected animals.
      3. Destruction of known animal sources of infection.

Ancylostomiasis (Hookworm Disease)

1. *Recognition of the disease.*—Light degrees of infestation may produce no striking clinical symptoms, although some degree of secondary anemia and slight interference with bodily and mental development may be noted. A medium degree of infestation shows marked anemia and, if before puberty, definite physical and mental retardation, and a dry dirty-yellow skin. Severe infestations may show petechiae and atrophy of the skin, edema, general or of dependent parts, extreme anemia, anxious, stupid expression, prominent abdomen. The diagnosis is definitely established by finding ancylostoma ova in the stools, by smear or flotation methods.
2. *Etiological agent.*—In the United States, *Necator americanus*, rarely *Ancylostoma duodenale*.
3. *Source of infestation.*—Feces of infested persons. Infestation generally takes place through the skin, occasionally by the mouth.
4. *Mode of transmission.*—The larval forms pierce the skin, usually of the foot, and, passing through the lymphatics to the vena cava and the right heart, thence in the blood stream to the lungs, they pierce the capillary walls and pass into the alveoli. They then pass up the bronchi and trachea to the throat, whence they are swallowed and finally lodge in the small intestine. Also by drinking water containing larvae, by eating soiled food, by hand to mouth transmission of the eggs or larvae from objects soiled with infested discharges. The chief reservoir of infectious material is *contaminated soil.*
5. *Incubation period.*—No incubation period occurs comparable to that observed in bacterial and virus infections. Onset of symptoms varies widely in time, according to the intensity of the infestation, from 2 to 3 weeks in massive infestations (commonly 7 to 10 weeks), to many months or even years where infestation or reinfestation is by small numbers of worms. The free living

form may exist in the soil under favorable conditions for several weeks. Eggs are found in the stools in about 4 to 6 weeks after the larvae penetrate the skin.

6. *Period of communicability.*—As long as the parasite or its ova are found in the bowel discharges of an infested individual. Contaminated soil may remain infective for 5 months in the absence of freezing. An individual can communicate the disease to others only by the indirect method of pollution of the soil with his feces. As long as mature female worms are in the intestine, eggs, if deposited in the feces in warm moist soil, become sources of infestation, especially where the soil is sandy.
7. *Susceptibility and immunity.*—Susceptibility to infestation is universal, although among adults, especially Negroes, infestations are likely to be less heavy than among children and in the white races. Immunity does not develop after infestation.
8. *Prevalence.*—Endemic widely throughout those climatic belts where frost does not last more than 6 weeks in the year, and particularly where the soil is sandy. In rural areas of the Southern States of the United States, particularly among white children of school age; less commonly and less severely among Negro children. Damp summer weather increases the prevalence of infestation. During the past two decades there has been some decrease in prevalence and severity of the disease in continental United States. Prevalence is high in Puerto Rico.
9. *Methods of control:*
   A. The infested individual, contacts, and environment:
      1. Recognition of the disease and reporting: Microscopic examination of bowel discharges.
      2. Isolation: None.
      3. Concurrent disinfestation: Sanitary disposal of bowel discharges to prevent contamination of soil and water.
      4. Terminal disinfestation: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infestation: Each case and carrier is a potential or actual spreader of the disease and should be brought under treatment and his family contacts examined.
      8. Treatment: Appropriate treatment of infested persons with carbon tetrachloride, oil of chenopodium, or tetra-chlor-ethylene, to rid the intestinal canal of the parasite and its ova.

   B. General measures.
      1. Education as to dangers of soil pollution and methods of prevention.
      2. **Prevention of soil pollution by installation of sanitary disposal system for human discharges, especially sanitary privies in rural areas.**
      3. Personal prophylaxis by cleanliness and the wearing of shoes.

Anthrax

1. *Recognition of the disease.*—Two forms occur—external due to direct inoculation through a cut or abrasion, and internal caused by ingestion or inhalation of the bacilli or their spores. Following the initial papule and vesicle at the external site of inoculation, an eschar develops and then hard edematous swelling of deeper and adjacent tissues. Freedom from pain is usual. Constitutional symptoms do not parallel the gravity of the lesions. Confirmation by microscopic examination of the lesions and discharges for *B. anthracis*.
2. *Etiological agent.*—Anthrax bacillus, *Bacillus anthracis*
3. *Source of infection.*—Hair, hides, flesh, and feces of infected animals.
4. *Mode of transmission.*—Inoculation as by accidental wound or scratch, inhalation of spores of the infectious agent, ingestion of insufficiently cooked meat, and mechanically by flies and mosquitoes.
5. *Incubation period.*—Within 7 days, usually less than 4.
6. *Period of communicability.*—During the febrile stage of the disease and until lesions have ceased discharging. Infected hair and hides of infected animals may communicate the disease many months after slaughter of the animal and after drying of hide, fur, or hair, unless disinfected.

7. *Susceptibility and immunity.*—Man is not as susceptible as the domestic animals, especially the herbivora, but more so than the carnivora. Immunity may develop following an attack of the disease. Artificial active immunity, widely used for domestic animals, is not appropriate for humans.
8. *Prevalence.*—Rare and sporadic in humans and associated only with the occurence of the disease in cattle, or with handling hide and hair products from infected cattle. In epidemic form in cattle in various foreign countries from time to time.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical and bacteriological.
      2. Isolation of the infected individual until the lesions have healed.
      3. Concurrent disinfection of the discharges from lesions and articles soiled therewith: Spores can be killed only by special measures such as steam under pressure or burning.
      4. Terminal disinfection: Thorough cleaning.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Search for the product of the infected animal, and trace to origin for discovery of disease in sporadic or epidemic form in domestic animals, where it will be found in all but rare instances.

   B. General measures:
      1. **Animals ill with disease presumably anthrax should be isolated immediately in the care of a veterinary surgeon. Animals proved to have the disease should be killed and promptly destroyed, preferably by incineration.**
      2. Immunization of exposed animals under direction of Federal or State Department of Agriculture.
      3. Post-mortem examination should be made only by a veterinary surgeon or in the presence of one.
      4. Milk from an infected animal should not be used during the febrile period.
      5. Control and disinfection of effluents and trade wastes and of areas of land polluted by such effluents and wastes from factories or premises, where spore-infected hides or other infected hide and hair products are known to have been worked up into manufactured articles.
      6. Every shipment of raw hides, hair, or bristles from sources which are not known to be free from anthrax infection should be examined by an expert bacteriologist.
      7. A physician should be constantly employed by every company handling raw hides, or such companies should operate under the direct supervision of a medical representative of the health department.
      8. Every employee handling raw hides, hair, or bristles who has an abrasion of the skin should immediately report to a physician.
      9. Special instruction should be given to all employees handling raw hides in regard to the necessity of personal cleanliness.
      10. Tanneries and woolen mills should be provided with proper ventilating apparatus so that dust is promptly removed before reaching the respiratory tract of human beings.
      11. Disinfection of hair, wool, and bristles of animals originating in known infected centers before they are used or assorted.
      12. The sale of hides from an animal infected with anthrax should be prohibited. A violation of this regulation should be immediately reported to the appropriate State commissioner of agriculture by telegram, stating the time, place, and purchaser to whom the hide was sold. The report should also be sent to the person purchasing the hide. Carcasses should be disposed of under the supervision of the appropriate department of agriculture. The inspection and disinfection of imported hides are under the supervision of the United States Bureau of Animal Industry. In the event that infection is introduced, the State agricultural authorities have jurisdiction over infected animals and the local or State health authorities have jurisdiction over infected persons.

Chicken Pox

1. *Recognition of the disease.*—Clinical picture is of an acute disease with a slight fever, mild constitutional symptoms, and an eruption, maculopapular for a few hours, often not observed, vesicular lasting 3 to 4 days leaving a granular scab. Vesicles tend to be as abundant on the covered as on the exposed parts of the body, and frequently appear in different stages on the same region of the body.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—The infectious agent is presumably present in the lesions of the skin and of the mucous membranes; the latter, appearing early and rupturing as soon as they appear, render the disease communicable early, that is, before the exanthem is in evidence.
4. *Mode of transmission.*—Directly from person to person; indirectly through articles freshly soiled by discharges from an infected person.
5. *Incubation period.*—Two to three weeks.
6. *Period of communicability.*—Probably not more than 6 days after the appearance of the first crop of vesicles, and certainly not more than 10 days. Especially communicable in the early stages of the eruption. One of the most readily communicable of diseases.
7. *Susceptibility and immunity.*—Susceptibility is practically universal among those who have not previously had the disease. An attack confers permanent immunity, with rare exceptions. Passive temporary immunity may be conferred by the use of convalescent serum from those recently recovered.
8. *Prevalence.*—Universal. Probably 90 percent of persons have had the disease by the time they are 15 years of age. Not uncommon in early infancy. Winter and spring are seasons of greatest prevalence in North America.
9. *Methods of control:*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting: The chief public health importance of this disease is that cases thought to be chicken pox in persons over 15 years of age, or at any age during an epidemic of smallpox, are to be investigated to eliminate the possibility of their being smallpox.
      2. Isolation: Exclusion from school, and avoidance of contact with nonimmune persons should be made effective.
      3. Concurrent disinfection: Articles soiled by discharges from lesions.
      4. Terminal disinfection: Thorough cleaning.
      5. Quarantine: None.
      6. Immunization: Passive immunization of susceptible children may be of value in institutions when exposure is feared, or under exceptional conditions in individual cases.
      7. Investigation of source of infection: Of no importance unless in persons over 15 years of age or when smallpox is suspected or is locally prevalent.

   B. General measures: None.

Cholera

1. *Recognition of the disease.*—In a few mild cases, diarrhea may be the chief or only symptom. In the typical case, rice-water stools, vomiting, and general symptoms of dehydration occur with thirst, pain, and coma. The cholera vibrios are found in the stools.
2. *Etiological agent.*—Cholera vibrio, *Vibrio comma.*
3. *Source of infection.*—Bowel discharges and vomitus of infected persons, and feces of convalescent or healthy carriers. Ten percent of contacts may be found to be carriers.
4. *Mode of transmission.*—By food and water polluted by infectious agent; by contact with infected persons, carriers, or articles freshly soiled by their discharges; by flies.
5. *Incubation period.*—One to five, usually three, days, occasionally longer if the healthy carrier stage, before development of symptoms, is included.
6. *Period of communicability.*—Usually 7 to 14 days or longer and until the infectious organism is absent from the bowel discharges. A high degree of communicability is usual.

7. *Susceptibility and immunity.*—Susceptibility is general, although natural immunity appears to exist to a limited degree. Acquired immunity is uncertain. Active artificial immunity for about 1 year may be obtained by vaccines.
8. *Prevalence.*—Rare in North America. Appears in epidemic form frequently in the Philippines. Does not occur sporadically, except as an isolated case is discovered in the course of maritime quarantine enforcement.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms confirmed by bacteriological examination of stools.
      2. Isolation of patient in hospital or screened room during communicable period.
      3. Concurrent disinfection: Prompt and thorough disinfection of the stools and vomited matter. Articles used by and in connection with the patient must be disinfected. Food left by the patient should be burned.
      4. Terminal disinfection: The room in which a sick patient was isolated should be thoroughly cleaned.
      5. Quarantine: Contacts for 5 days from last exposure, or longer if stools are found to contain the cholera vibrio.
      6. Immunization: Prophylactic immunization of contacts is useful and advisable.
      7. Investigation of source of infection: Search for contaminated food and water as common origin of groups of cases, and for unreported cases and for carriers.
   B. General measures:
      1. Rigid personal prophylaxis of attendants by scrupulous cleanliness, disinfection of hands each time after handling patient or touching articles contaminated by dejecta, the avoidance of eating or drinking anything in the room of the patient, and the prohibition of those attendant on the sick from entering the kitchen.
      2. The bacteriological examination of the stools of all contacts to determine carriers. Isolation of carriers.
      3. **Water should be boiled, if used for drinking or toilet purposes, or if used in washing dishes or food containers, unless the water supply is adequately protected against contamination or is so treated, as by chlorination, that the cholera vibrio cannot survive in it.**
      4. **Careful supervision of food and drink: Where cholera is prevalent, only cooked foods should be used. Food and drink after cooking or boiling should be protected against contamination, as by flies and human handling.**
   C. Epidemic measures: Inspection service for early detection and isolation of cases; examination of persons exposed in infected centers for detection of carriers, with isolation or control of carriers; cleaning of rooms occupied by the sick, and the detention, in suitable camps for 5 days, of those desirous of leaving for another locality. Those so detained should be examined for detection of carriers.

Conjunctivitis, Acute Infectious (Not Including Trachoma)

(This title to replace the terms Gonorrheal ophthalmia, Ophthalmia neonatorum, and Babies' sore eyes.)

1. *Recognition of the disease.*—Acute redness and swelling of the conjunctiva of one eye or of both eyes, with muco-purulent and purulent discharge in which the infecting micro-organism is identifiable by microscopic and cultural methods.
2. *Etiological agent.*—The gonococcus or some member of a group of pyogenic organisms, including the hemoglobinophilic bacilli.
3. *Source of infection.*—Discharges from conjunctivae, or adnexa, or genital mucous membranes of infected persons.
4. *Mode of transmission.*—Contact with an infected person or with articles freshly soiled with discharges of such person.
5. *Incubation period.*—Irregular, but usually 36 to 48 hours.
6. *Period of communicability.*—During the course of the disease and until the discharges from the infected mucous membranes have ceased. Readily communicable.

7. *Susceptibility and immunity.*—Susceptibility is general, particularly in the newborn. Acquired immunity does not follow an attack of the disease, and artificial immunity is not practicable.
8. *Prevalence.*—Occurrence varies widely according to the observance or neglect of prophylactic use of a solution of silver nitrate or equivalent preparation in the eyes of the newborn by the attendant at the delivery. An infrequent complication in the present-day care of the newborn.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease: Clinical symptoms, confirmed where possible by bacteriological examination.
      2. Isolation: None, provided the patient is under adequate medical supervision.
      3. Concurrent disinfection: Disinfection of conjunctival discharges and articles soiled therewith.
      4. Terminal disinfection: Thorough cleaning.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection—among persons recently in contact with the patient: The disease in the newborn is almost always due to infection from the genital tract of the mother.
   B. General measures:
      1. **Use of silver nitrate or some similar solution in the eyes of the newborn; antepartum treatment of mother if gonorrhea is suspected.**
      2. Enforcement of regulations forbidding the use of common towels and toilet articles. Education as to personal cleanliness.
      3. Carrying out of the measures indicated in methods of control for gonorrhea.

Dengue

1. *Recognition of the disease.*—An acute febrile infection of sharp onset with two paroxysms, of short duration. Intense headache, joint and muscle pains, and irregular eruption are usual.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—The blood of infected persons, during first 3 days of the disease.
4. *Mode of transmission.*—By the bite of infected mosquitoes, *Aëdes aegypti*, from 11 days after biting a patient during the first 5 days of the disease, until the death of the mosquito.
5. *Incubation period.*—Three to 10 days.
6. *Period of communicability.*—From the day before onset to the fifth day of the disease. Degree of communicability depends on prevalence of infected humans and abundance of *Aëdes aegypti* mosquitoes.
7. *Susceptibility and immunity.*—Susceptibility apparently universal. Acquired immunity may last a few months to a year. After several attacks an almost complete immunity is developed.
8. *Prevalence.*—Occurs only where the *Aëdes aegypti* mosquito exists, mainly in tropics and subtropics. When occurring in epidemic form in the United States, begins usually in southernmost States, moving north until the range of the vector mosquito is stopped by climate or the season of the year. Common, and in frequent epidemics, in the Philippines. Occurs equally among males and females; less among indigenous than among visiting or transient whites where the disease commonly occurs.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting.
      2. Isolation: The patient must be kept in a screened room.
      3. Concurrent disinfection: None.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Search for unreported or undiagnosed cases and for the *Aëdes aegypti* mosquito and its breeding places.
   B. General measures: **Measures directed toward elimination of mosquitoes (*Aëdes aegypti*). Screening of rooms.**

Diphtheria

1. *Recognition of the disease.*—An acute febrile infection, generally of the air passages, especially of tonsils, throat, and nose, marked by a patch or patches of dirty white and grayish membrane, from which cultures of the diphtheria bacillus may be obtained. Cases of diphtheritic infection in infants are often missed because of the lack of definite local symptoms.
2. *Etiological agent.*—Diphtheria bacillus, *Corynebacterium diphtheriae,* the Klebs-Loeffler bacillus.
3. *Source of infection.*—Discharges from diphtheritic lesions of nose, throat, conjunctiva, vagina, and wound surfaces. Secretions from the nose and throat of carriers of the bacillus.
4. *Mode of transmission.*—Directly by personal contact, indirectly by articles freshly soiled with discharges, or through infected milk or milk products.
5. *Incubation period.*—Usually 2 to 5 days, occasionally longer if the carrier state precedes the development of clinical symptoms.
6. *Period of communicability.*—Variable, until virulent bacilli have disappeared from the secretions and the lesions. Usually 2 weeks or less, seldom over 4 weeks. In exceptional cases virulent bacilli remain in the throat and discharges from 2 to 6 months.
7. *Susceptibility and immunity.*—Infants born of mothers with an established immunity are relatively immune for the first 6 months of life. By the ninth month of life this passive congenital immunity has been lost in a high percentage of infants. Subsequently children and adults develop immunity apparently in approximate proportion to their contact with associates who carry the diphtheria bacillus with or without exposure to persons with recognized attacks of the disease. It is usual to find about half of the children of school age and three-quarters of adults in large cities immune. Such accidental immunity is less frequent among rural and small-town populations. Passive temporary immunity (10 days to 3 weeks) and active immunity of commonly permanent duration can be developed artificially. Recovery from attack of the disease, especially if with the aid of therapeutic diphtheria antitoxin, is not necessarily followed by active immunity.
8. *Prevalence.*—Endemic and epidemic. Two-thirds or more of the cases are in children under 10 years of age and two-thirds or more of the deaths occur in children under 5 years of age. More common in temperate zone than elsewhere, and in fall and winter months. Local increased prevalence may occur in irregular cycles of 4- to 8-year intervals. Reduction in incidence, death rate, and case fatality rate has been progressive and marked in the past 30 years.
9. *Methods of control:*

   A. The infected individual, contacts, and environment:
   1. Recognition of the disease and reporting. By clinical symptoms with confirmation by bacteriological examination of discharges.
   2. **Isolation:** Until 2 cultures from the throat and 2 from the nose, taken not less than 24 hours apart, fail to show the presence of diphtheria bacilli. Isolation may be terminated if the microorganism reported as morphologically "positive", although persistently present, proves to be an avirulent form. Where termination by culture is impracticable, cases may be terminated with fair safety as a rule 16 days after onset of the disease. A virulence test should be made in any case where positive throat cultures are reported 3 weeks or longer after onset of the disease.
   3. **Concurrent disinfection of all articles which have been in contact with the patient, and all articles soiled by discharges of the patient.**
   4. Terminal disinfection: At the end of the illness, thorough airing and sunning of the sick room, with cleaning or renovation.
   5. Quarantine: All intimate contacts until shown by bacteriological examination not to be carriers.
   6. Immunization: Passive immunization with antitoxin is rarely necessary for exposed persons over 5 years of age, for whose protection daily examination by a physician or nurse suffices. Infants and young children exposed to diphtheria in the family should receive a prophylactic dose of antitoxin without prior Schick testing, unless they are already known to the physician to be immune.
   7. **Investigation of source of infection: In unreported cases, in carriers, and milk.**

B. General measures:
  1. **Active immunization of all children, without prior Schick testing, at the age of 6 months, with a diphtheria toxoid. This same procedure should be applied to all children at or below 6 years of age if immunization has been neglected in infancy.**[3]
  2. Older children, and adults especially exposed, including teachers, nurses, and physicians found to be Schick-positive should be actively immunized. In order to minimize local and constitutional reactions in members of these groups, it is desirable to carry out a preliminary "toxoid reaction test", nonreactors to receive toxoid, and reactors toxin-antitoxin (goat) in 2 or 3 inoculations or suitably diluted toxoid.
  3. Pasteurization of milk supply.
  4. Educational measures to inform the public, and particularly the parents of little children, of the advantages of toxoid immunization in infancy.

Dysentery, Amebic (Amebiasis)

1. *Recognition of the disease.*—Insidious and undetermined onset characterizes mild acute cases, with digestive disturbance, anorexia, diarrhea or constipation, and usually little abdominal discomfort. Severe acute cases following massive infection may simulate acute appendicitis, or other acute surgical abdominal condition with high temperature and severe prostration. The subacute and chronic forms of the disease vary widely in the extent of local and constitutional symptoms. There may or may not be diarrhea or constipation; or these may alternate in the same patient.
2. *Etiological agent.—Endamoeba histolytica.*
3. *Source of infection.*—The bowel discharges of infected persons and of carriers.
4. *Mode of transmission.*—By drinking contaminated water and by eating infected foods, especially those that are commonly served cold and moist, and hand-to-mouth transfer of infected material; from moist objects soiled with discharges of an infected individual; by flies.
5. *Incubation period.*—From 2 days in severe infections to several months in subacute and chronic cases; commonly 3 to 4 weeks.
6. *Period of communicability.*—During course of infection and until repeated microscopic examination of stools shows absence of the *Endamoeba histolytica* (either trophozoites or cysts). Direct transmission unusual.
7. *Susceptibility and immunity.*—Susceptibility to infestation is general; immunity uncertain; no artificial immunity.
8. *Prevalence.*—Not a common disease clinically in continental North America. Epidemic outbreaks are rare. It is estimated that almost 5 percent of the population are carriers of cysts.
9. *Methods of control:*
  A. The infected individual, contacts and environment:
    1. Recognition of the disease and reporting: Clinical symptoms confirmed by microscopic examination of stools.
    2. Isolation: None.
    3. Concurrent disinfection: Sanitary disposal of the bowel discharges. Hand washing after use of toilet.
    4. Terminal disinfection: Cleaning.
    5. Quarantine: None.
    6. Immunization: None.
    7. Investigation of source of infection: Microscopic examination of stools of inmates of the household, or of work associates of the infected person, and of other suspected contacts, should be supplemented by search for direct contamination of water and foods by human feces.
  B. General measures:
    1. **Sanitary disposal of human feces.**
    2. **Protection of potable water supplies against fecal contamination, and boiling drinking water where necessary. Chlorination of water supplies as generally used has been found inadequate for the destruction of cysts.**

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[3] Active immunization by any method should not be presumed to be successful without routine Schick testing or testing a representative sample of those inoculated 3 months after such procedure.

3. Supervision of the general cleanliness, of the personal health and sanitary practices of persons preparing and serving food in public eating places, especially moist foods eaten raw.
4. Education in personal cleanliness, particularly washing hands with soap and water after evacuation of the bowels.
5. Control of fly breeding and protection of foods against fly contamination by screening.
6. **It is of importance that all cross connections between potable and polluted water supplies be forbidden. Systematic inspection should be made to discover them, and the supply should be disconnected until such cross connections have been eliminated.**
7. Instruction of convalescent and chronic carriers in personal hygiene, particularly as to sanitary disposal of fecal waste, and hand washing after use of toilet.

C. Epidemic measures: In case of epidemics due to relatively massive doses of infectious material, active measures should be employed to discover the source of infection, and to warn the public and the medical profession of the early and characteristic symptoms, and of the serious immediate and remote results of such infection.

Dysentery, Bacillary

1. *Recognition of the disease.*—The typical case exhibits an acute onset, fever, tenesmus, with frequent stools containing blood and mucus. One or more of a large number of possible types of the dysentery bacillus can usually be found in the stools in the first 2 days of the disease.
2. *Etiological agent.*—Dysentery bacillus, *Shigella dysenteriae, Shigella paradysenteriae.*
3. *Source of infection.*—The bowel discharges of infected persons.
4. *Mode of transmission.*—By eating infected foods, and by hand-to-mouth transfer of infected material; by flies; from objects soiled with discharges of an infected individual or of a carrier; by drinking contaminated water. Polluted milk and water are less common vehicles of this disease than is the case with typhoid fever.
5. *Incubation period.*—2 to 7 days.
6. *Period of communicability.*—During the febrile period of the disease and until the micro-organism is absent from the bowel discharges, sometimes as long as 4 weeks.
7. *Susceptibility and immunity.*—Susceptibility is general among children, but less so, and the disease less severe, in adults. A relative and not permanent immunity follows recovery from the disease.
8. *Prevalence.*—Endemic, epidemic, and sporadic, but shares with other enteric infections in striking and progressive reduction wherever water supplies are rendered safe, sewage is disposed of in a sanitary manner, milk is pasteurized, and infant hygiene is of a good order. Most common in the summer months and in subtropical and tropical areas.
9. *Methods of control:*

A. The infected individual, contacts, and environment:
1. Recognition of the disease and reporting:[4] Clinical symptoms confirmed by serological and bacteriological tests.
2. Isolation: Infected individuals during the communicable period of the disease, particularly rigid personal precautions by attendants.
3. Concurrent disinfection: Bowel discharges.
4. Terminal disinfection: Cleaning.
5. Quarantine: None.
6. Immunization: Vaccines may give some immunity. Owing to severe reactions their use is not recommended, nor should vaccination be made compulsory except under extreme emergency.
7. Investigation of source of infection: Search for a common source in contaminated food and water, and for carriers particularly among food handlers, should be undertaken as in the case of typhoid fever.

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[4] Groups of cases of acute diarrheal disorder should always be reported to the health officer at once, even in the absence of exact determination of the nature and origin of the disease.

B. General measures:

1. **Protection and purification of public water supplies, together with prevention of subsequent contamination.**
2. **Pasteurization of public milk supplies; use of boiled milk for infant feeding.**
3. Supervision of preparation and handling of other foods, particularly those which are moist and eaten raw.
4. Hand washing, by food handlers in particular, following use of toilet.
5. Prevention of fly-breeding; screening.
6. **Sanitary disposal of human excreta.**
7. Persons known to be infected, and their attendants, should be excluded from handling food for public consumption, and from handling the family food supply if possible.
8. The exercise of rigid precautions in known cases of bacillary dysentery is requisite but is inadequate as a safeguard against the ever-present risk of infection from concealed sources. Reduction of high infant mortality rates is dependent upon prevention of diarrhea and enteritis. Infant hygiene, including breast feeding, scrupulous cleanliness at all times in the preparation and handling of food for children, and continuous attention to diet in order to avoid minor digestive disturbances that may lower resistance to the infection will do much toward accomplishing this aim. As a precautionary measure, all cases of infantile diarrhea should be regarded as bacillary dysentery. Prevention of epidemics of bacillary dysentery by guarding against massive dissemination of infection should be a major concern, particularly in prisons, camps, and institutions.

Encephalitis, Infectious, Lethargic and Nonlethargic

1. *Recognition of the disease.*—Largely clinical. At least 2 forms occur: type A and type B. Type A is the more chronic and variable in course, often with a mild febrile onset, later with symptoms of brain or nerve involvement, such as slight meningeal irritation, somnolence, diplopia, or evident paralysis of eye muscles, insomnia, restlessness, twitching, myoclonia, catatonia, with or without fever; and still later at times, slow, semirigid movements, coarse tremor, mask-like expression or other disturbances of motility, psychic or behavior disturbances, often with exacerbations and remissions over several years. Though an individual case of type B may be indistinguishable from type A, in type B the onset is usually more abrupt as to fever and headache, with drowsiness rather than deep sleep, disorientation, motor disturbances, but very infrequent paralysis of the eye muscles, meningeal irritation with an increase of cells in the spinal fluid more uniformly than in type A, and usually complete and fairly prompt recovery in the nonfatal cases. All ages are attacked in both types, children and young adults more frequently in type A, the older ages in type B. This disease is to be distinguished from post- or para-infectious encephalitis which follows or accompanies such infections as measles, vaccinia, and chicken pox, by the history of the prior infection.
2. *Etiological agent.*—Probably a virus for type A; a specific filterable virus for type B.
3. *Source of infection.*—Probably discharges from the nose and throat of carriers or of infected persons, or articles freshly soiled therewith.
4. *Mode of transmission.*—Probably by direct contact with a carrier or an infected person, or by contact with articles freshly soiled with the discharges of the nose and throat of such persons.
5. *Incubation period.*—Four to twenty-one days.
6. *Period of communicability.*—Unknown; cases rarely traceable to any previous case. Presumably at a maximum during acute febrile stage of the disease.
7. *Susceptibility and immunity.*—Effective susceptibility limited to a small fraction of the population at any age. Natural immunity or immunity resulting from an attack are assumed to occur, but have not been proved except by the ability of the blood serum to neutralize type B virus.
8. *Prevalence.*—Type A was first distinctly recognized in 1917, but had occurred before, and has since been prevalent in many parts of the world, especially from 1920 to 1926, infrequently now. Type B has been especially prevalent

in the west central provinces of Japan, intense epidemics having occurred there in 1924 and 1929. At least some of the Japanese cases were distinct immunologically from the clinically similar type B cases in the St. Louis area in 1933, where there was an incidence of 100 per 100,000 population. Type A occurs at all seasons of the year but more frequently in late winter and spring. Type B occurs notably in late summer and fall epidemics.

9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting. Clinical symptoms, assisted, especially in type B, by microscopical and chemical examination of the spinal fluid if lumbar puncture is performed.
      2. Isolation: For 1 week after onset.
      3. Concurrent disinfection: Discharges of the nose and throat and articles soiled therewith.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Search for prior cases in the community and for unreported cases among the associates of the patient may develop useful epidemiological information, but so far is of no practical value in control of the disease.
   B. General measures: None.

Favus

1. *Recognition of the disease.*—A parasitic fungus disease of the skin, usually on the scalp, marked by cup-shaped yellowish crusts covering the hair follicles.
2. *Etiological agent.*—*Achorion schoenleinii.*
3. *Source of infection.*—Lesions of skin, particularly on scalp, rarely on nails.
4. *Mode of transmission.*—Direct contact with patient, and indirectly through toilet articles.
5. *Incubation period.*—Unknown.
6. *Period of communicability.*—Until skin and scalp lesions are all healed as shown by absence of scaling and erythema, to be confirmed by microscopic examination, culture, and absence of fluorescence under a suitable ultra-violet light.
7. *Susceptibility and immunity.*—Infection by this fungus is frequent with the presence of another patient in the family, and with neglect of personal cleanliness.
8. *Prevalence.*—Rare in children in North America, and when occurring can usually be traced to immigrants from southern and eastern Europe.
9. *Methods of control:*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting: Clinical symptoms confirmed by microscopic examination of crusts, and cultures on Sabouraud's medium.
      2. Isolation: Exclusion of patient from school and other public places until lesions are healed. Patient should wear a light, tight-fitting cotton skull cap constantly. This must be changed frequently and boiled.
      3. Concurrent disinfection: Toilet articles of patient.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Search for unreported and unsuspected cases among immediate home or play or work associates of the patient.
   B. General measures:
      1. Elimination of common utensils, such as hair brushes and combs.
      2. Provision for adequate and intensive treatment and cure of cases of favus at hospitals and dispensaries, to abbreviate the period of infectivity of the patient.

German Measles (Rubella)

1. *Recognition of the disease.*—A febrile infection in epidemics, characterized by a polymorphous rash, sometimes resembling that of measles, sometimes that of scarlet fever, and sometimes of both at the same time; few or no

constitutional symptoms but almost always enlargement of post-auricular, sub-occipital and cervical, and occasionally of other, lymph nodes. Usually absence of leukocytosis.

2. *Etiological agent.*—Unknown.
3. *Source of infection.*—Secretions of the mouth and possibly of the nose.
4. *Mode of transmission.*—By direct contact with the patient or with articles freshly soiled with the discharges from the nose or throat of the patient.
5. *Incubation period.*—From 14 to 21 days; usually about 16 days.
6. *Period of communicability.*—From onset of catarrhal symptoms for at least 4 days, but not more than 7; the exact period is undetermined. Highly communicable.
7. *Susceptibility and immunity.*—Susceptibility is general among young children. An attack usually confers permanent immunity.
8. *Prevalence.*—Epidemic in expression, occurring mostly in childhood, but more in adults than is the case with measles. Commoner in urban than in rural communities, and oftener in winter and spring than at other seasons.
9. *Methods of control:*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting: Clinical symptoms.
      2. Isolation: Separation of the patient from nonimmune children, and exclusion of the patient from school and public places for the period of presumed infectivity. Isolation rarely practicable.
      3. Concurrent disinfection: Discharges from the nose and throat of the patient and articles soiled by discharges.
      4. Terminal disinfection: Airing and cleaning.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Of no importance except to clarify doubts created by clinical difficulty in distinguishing this disease from scarlet fever in its early stages.

   B. General measures: None.

NOTE.—The reason for attempting to control this disease is that it may be confused with scarlet fever during its early stages; each person having symptoms of the disease should therefore be placed under the care of a physician and the case should be reported to the local department of health.

Glanders

1. *Recogni on of the disease.*—Occurs in 2 forms, 1 external affecting the skin and known as "farcy", and an internal form known as "glanders." It may appear as an acute or chronic disease, with widely variable symptoms, the diagnosis being established by one or other of the following b' logical reactions: The complement fixation test, the mallein test, the agglutination test, or by nonspecific reactions, such as the Straus reaction, if confirmed by culture, or by identification of the *Pfeifferella mallei*, or by autopsy of the doubtful cases.
2. *Etiological agent.*—Glanders bacillus, *Pfeifferella mallei.*
3. *Source of infection.*—Discharges from open lesions of mucous membranes, or of the skin of human or equine cases of the disease (i.e., pus and mucus from the nose, throat, and bowel discharges from infected man and horse).
4. *Mode of transmission.*—Contact with a case or with articles freshly soiled by discharges from a human or equine case.
5. *Incubation period.*—Undetermined; usually 1 to 5 days.
6. *Period of communicability.*—Until bacilli disappear from discharges or until lesions have healed.
7. *Succptibility and immunity.*—Susceptibility appears to be common. Immunity is believed to follow recovery from the infection.
8. *Prevalence.*—Rare and sporadic and almost exclusively in men occupied about horses. In widespread and local epidemics as an epizootic in horses.
9. *Methods of control:*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting.
      2. Isolation: Human case at home or hospital; for infected horses destruction rather than isolation is advised. **Skin contact with the lesions in the living or dead body is to be scrupulously avoided.**
      3. Concurrent disinfection: Discharges from human cases and articles soiled therewith.

4. Terminal disinfection: Stables and contents where infected horses are found.
5. Quarantine of all horses in an infected stable until all have been tested by specific reaction, and the removal of infected horses and terminal disinfection of stable have been accomplished.
6. Immunization: None of established value or generally accepted.
7. Investigation of source of infection: Carriers not known in humans. Search for infected horses especially in sales stables, by observation and specific laboratory tests.

B. General measures:

1. The abolition of the common drinking trough for horses.
2. Sanitary supervision of stables and blacksmith shops.
3. Semiannual testing of all horses by a specific reaction where the disease is common.
4. Testing of all horses offered for sale where the disease is common.

NOTE.—In this disease, as in all infectious or communicable diseases from which both animals and humans suffer, cases occurring in animals should be reported to the Department of Agriculture, and human cases should be reported to the Department of Health, reciprocal notification thereafter to be accomplished through official interdepartment channels.

Gonorrhea

1. *Recognition of the disease.*—Occurring initially as an infection of one of the mucous membranes, most frequently of the genital tract, urethra in the male, the vaginal or uterine mucosa in the female, the disease develops as an acute or chronic process in adjacent or remote tissues, among the latter especially as arthritis and endocarditis. Relapsing and chronic inflammatory discharging conditions at the site of original attack are common. Demonstration of the etiological agent in the lesions or discharges is the best and only certain diagnostic procedure. Specific antibodies may be demonstrated, and specific constitutional and local reactions can be provoked.
2. *Etiological agent.*—Gonococcus, *Neisseria gonorrhoeae.*
3. *Source of infection.*—Discharges from lesions of inflamed mucous membranes and glands of infected persons, viz, urethral, vaginal, cervical, conjunctival mucous membranes, and Bartholin's or Skene's glands in the female, and Cowper's and the prostate glands in the male.
4. *Mode of transmission.*—By direct personal contact with infected persons, and indirectly by contact with articles freshly soiled with the discharges of such persons. In adults by sexual intercourse; in children by other personal and indirect contact with discharges.
5. *Incubation period.*—One to 8 days, usually 3 to 5 days.
6. *Period of communicability.*—As long as the gonococcus persists in any of the discharges, whether the infection be an old or a recent one. Readily communicated in sexual intercourse.
7. *Susceptibility and immunity.*—Susceptibility appears to be general, particularly of vaginal tract in young girls, and of conjunctiva in newborn. Acquired immunity does not occur generally, but some degree of transient local immunity may appear during infection. One attack and recovery does not protect against subsequent infection.
8. *Prevalence.*—Wide-spread in both sexes and at all ages, but most common among men from 18 to 40 years of age and among women at a little earlier age. Endemic, sporadic, and epidemic.
9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms, confirmed by bacteriological examination or serum reaction.
2. Isolation: When the lesions are in the genito-urinary tract, exclusion from sexual contact, and when the lesions are conjunctival exclusion from school or contact with children, as long as the discharges contain the gonococcus.
3. Concurrent disinfection: Discharges from lesions and articles soiled therewith.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Each acute case should be traced to probable source of infection and appropriate control and treatment of this spreader of disease instituted. Males may continue to be carriers for a year or more; females for 2 to 3 years.

B. General measures:
1. Provision of accurate and early diagnosis, and careful treatment of infected persons, with due consideration for privacy of record, consistent with effective control of the patient, search for source of infection, and provision for following cases until cured.
2. Education in matters of sexual hygiene, particularly as to the fact that continence in both sexes at all ages is compatible with health and normal development.
3. Repression of commercialized prostitution, and associated use of alcoholic beverages, by police or other competent authority.
4. Restriction of advertising of services or medicines for the self treatment of sex diseases, etc.
5. Elimination of common towels and toilet articles from public places.
6. **Use of prophylactic silver solution in the eyes of the newborn.**
7. Personal prophylaxis should be advised to those who expose themselves to opportunity for infection, and made available for use immediately after sexual intercourse.
8. Exclusion of persons in the communicable stage of the disease from occupations involving contact with children.

Influenza

1. *Recognition of the disease.*—Whether occurring in a pandemic, in endemic-epidemic incidence, or as sporadic cases this disease is characterized in its typical form by sudden onset, fever of 1 to 7 days' duration, accompanied by excessive prostration, aches and pains in back and limbs, coryza and bronchitis, and not uncommonly by pneumonia as a complication. During epidemics when such cases occur in large numbers and over a wide area, other cases of less distinctive type are found to be epidemiologically related to typical cases, and in these the diagnosis would not be made without such obvious association. The clinical criteria of influenza are quite indefinite, particularly in absence of widespread prevalence of the disease. Microscopic or other laboratory procedures are of no practical value in determining or excluding the diagnosis of influenza.
2. *Etiological agent.*—A filterable virus; associated often with various types of bacteria as secondary invaders.
3. *Source of infection.*—Probably discharges from the mouth and nose of infected persons and articles freshly soiled by such discharges.
4. *Mode of transmission.*—Believed to be by direct contact, by droplet infection, or by articles freshly soiled with discharges of the nose and throat of infected persons.
5. *Incubation period.*—Short, usually 24 to 72 hours
6. *Period of communicability.*—Undetermined; possibly in prodromal as well as in the febrile stage and convalescent stages.
7. *Susceptibility and immunity.*—Susceptibility is not general, for natural resistance or relative immunity appears to protect from one-quarter to three-quarters of persons intimately exposed to the disease even during widespread epidemics. Acquired immunity if it is actually developed by an attack of and recovery from the disease is of short duration (a few months) and of low grade, or perhaps only effective against a certain strain or strains of the virus.
8. *Prevalence.*—Uncertain in pandemic, local epidemic, and sporadic occurrence, by reason of indefinite clinical symptoms. In epidemics may affect up to 50 percent of the population, especially at age groups between infancy and maturity. Commonly between December and May in North America. Occurs pandemically in cycles with intervals of several decades.
9. *Methods of control:*

A. The infected individual, contacts, and environment:
1. Recognition of the disease and reporting: By clinical symptoms only. Uncertain in interepidemic periods.
2. Isolation: During acute stage of the disease, especially in severe cases and those complicated by pneumonia.
3. Concurrent disinfection: Discharges from the nose and throat of the patient.
4. Terminal disinfection: None.
5. Quarantine: None, but visiting should be discouraged.
6. Immunization: None.
7. Investigation of source of infection: Of no practical value.

B. General measures:

1. During epidemics efforts should be made to reduce opportunities for direct contact infection, as in crowded halls, stores, and street cars. Kissing, the use of common towels, glasses, eating utensils, or toilet articles should be avoided. In isolated towns and institutions infection has been delayed and sometimes avoided by strict exclusion of visitors from already infected communities. The closing of the public, parochial, and private schools has not been effective in checking the spread of infection. The judicious use of masks by nurses and other attendants may prove of value in preventing infection in hospitals. Scrupulous cleanliness of dishes and utensils used in preparing and serving food in public eating places should be required, including the subjection of such articles to disinfection in hot soap suds. In groups which can be brought under daily professional inspection, the isolation of early and suspicious cases of respiratory tract inflammation, particularly when accompanied by a rise in temperature, may delay the spread of the disease. To minimize the severity of the disease, and to protect the patient from secondary infections and thus reduce mortality, patients should go to bed at the beginning of an attack and not return to work without the approval of their physician.
2. Crowding of beds in hospitals and institutions to accommodate increased numbers of patients and other inmates is to be especially avoided. Increased spacing between beds in wards and dormitories should be carried out to reduce the risk of attack, and of the occurrence of pneumonia.

Leprosy

1. *Recognition of the disease.*—The disease is to be identified by lesions of the skin and mucous membranes and by neurological manifestations. Confirmation by microscopic examination is usually possible in cutaneous and mixed types of the disease but may be difficult or impossible in maculo-anesthetic and neural cases.
2. *Etiological agent.*—Leprosy bacillus, *Mycobacterium leprae.*
3. *Source of infection.*—Discharges from lesions.
4. *Mode of transmission.*—Intimate and prolonged contact with infected individuals and some other as yet undetermined factor are apparently necessary.
5. *Incubation period.*—Prolonged, undetermined, from 1 to several years.
6. *Period of communicability.*—Commences when lesion becomes open, i. e., discharges leprosy bacilli; continues until healing. Patients with demonstrable acid-fast bacilli in smears from skin or mucous membranes are potentially "open" cases even if demonstrable ulceration be not present. Communicable only in certain geographic areas; in continental United States notably in States bordering on the Gulf of Mexico.
7. *Susceptibility and immunity.*—Susceptibility uncertain; no racial immunity.
8. *Prevalence.*—Endemic in some Gulf coast areas, Hawaii, Philippines, and Puerto Rico. Sporadic in North America and rare. Oftener among adolescent and young adult males.
9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting. Clinical symptoms confirmed by microscopic examination where possible.
2. Isolation: Isolation of bacteriologically positive cases occurring in endemic form in national leprosarium until a condition of apparent arrest has been present for at least 6 months, as determined by clinical observation and by absence of acid-fast bacilli on repeated examinations. Paroled and other negative lepers should be reexamined periodically, the suggested interval being 6 months.
3. Concurrent disinfection: Discharges and articles soiled with discharges.
4. Terminal disinfection: Thorough cleaning of living premises of patient.
5. Quarantine: None.
6. Immunization: None.

7. Investigation of source of infection: This should be undertaken especially in cases of apparently recent origin. The long and uncertain period of incubation, and the length of intimate contact believed to be necessary, make the discovery of the source of infection a matter of great difficulty.

B. General measures:

1. In endemic areas leprosy is usually contracted in childhood but it may be acquired in adult life. Infants should be separated from leprous mothers at birth, and in educational efforts stress should be placed upon the greater risk of exposure in early life.
2. Lack of information as to the determining factors in the spread and communication of the disease makes any but general advice in matters of personal hygiene of no value.
3. As a temporary expedient, lepers may be properly cared for in local hospitals, or if conditions of the patient and his environment warrant, he may be allowed to remain on his own premises under suitable regulations.
4. In those parts of the United States in the temperate zone farther north where the disease shows no tendency to spread, suitable medical and nursing care of infected persons is sufficient.

Malaria

1. *Recognition of the disease.*—A group of specific infectious fevers due to invasion of the red blood cells by 1 of at least 3 types of Sporozoa of the genus *Plasmodium.* These fevers occur endemically or epidemically and are associated with a symptom complex fairly characteristic of each variety, marked particularly by periodicity of fever and symptoms due to the growth and development of the organism. Enlargement of the spleen, secondary anemia, and the characteristic recurrence of chills and fever as clinical findings are confirmed by observing presence of the malaria parasites in blood film on microscopic examination. Mosquitoes of anopheline family are the only known vectors.
2. *Etiological agent.*—The several species of micro-organisms: *Plasmodium vivax* (tertian), *Plasmodium malariae* (quartan), *Plasmodium falciparum* (aestivo-autumnal).
3. *Source of infection.*—The blood of an infected individual.
4. *Mode of transmission.*—By bite of the infected *Anopheles* mosquitoes. The mosquito is infected by biting an individual suffering from acute or chronic malaria. The parasite develops in the body of the mosquito for from 10 to 14 days (21 days for quartan), after which time the sporozoites appear in its salivary glands.
5. *Incubation period.*—Varies with the type of species of infecting micro-organism and the amount of infection, usually 14 days in the tertian variety.
6. *Period of communicability.*—As long as the sexual form of the malaria micro-organism exists in the circulating blood in sufficient quantities to infect mosquitoes. In untreated cases this may last for months.
7. *Susceptibility and immunity.* Susceptibility is universal, although Negroes appear to suffer less severely from the disease. Some relative immunity appears to follow repeated attacks of the disease. A state of good nutrition is believed to be a factor in maintaining resistance to the disease and in spontaneous recovery.
8. *Prevalence.*—Endemic and sporadic, more frequently among children than adults, among Negroes more than among whites. Particularly prevalent in the southeast coastal plain, Mississippi Valley, south of St. Louis, in eastern Texas, New Mexico, Louisiana, Arkansas, southern Missouri, and slightly in California and Oregon. Serious in Puerto Rico and the Philippines. Seasonal occurrence of tertian type in early summer, estivo-autumnal in early fall.
9. *Methods of control:*

A. The infected individual, contacts and environment:

1. Recognition of the disease and reporting: Clinical symptoms, always to be confirmed by microscopical examination of the blood. Repeated examination of blood films may be necessary.
2. Isolation: The individual with malarial parasites in his blood should be protected from the bites of mosquitoes. With the exception of this simple precaution, isolation and quarantine are of no avail.

3. Concurrent disinfection: None. Destruction of *Anopheles* mosquitoes in the sick room.
4. Terminal disinfection: Destruction of *Anopheles* mosquitoes in the sick room.
5. *Quarantine:* None.
6. Immunization: None. The administration of prophylactic doses of quinine should be insisted on for those constantly exposed to infection and unable to protect themselves against *Anopheles* mosquitoes. This is not in an exact sense prophylaxis but early therapeusis.
7. **Specific therapy: Quinine bisulphate is preferred for routine treatment and "atebrin" is found by some to be equally reliable. Plasmochin seems to be specific for destruction of the adult sexual form of the parasite in estivo-autumnal malaria and in conjunction with quinine for tertian and quartan infections.**
8. Investigation of source of infection: Breeding places and house infestation by *Anopheles* mosquitoes should be sought for and larvae and mosquitoes destroyed when and where possible. Carriers of the malarial micro-organism, untreated, or inadequately treated, should be sought and brought under systematic therapy until the micro-organism can no longer be found in their blood.

B. General measures:
1. **Employment of known measures for destroying larvae of anophelines and the eradication of breeding places of such mosquitoes.**
2. Blood examination of persons living in infected centers to determine the incidence of infection.
3. **Screening sleeping and living quarters; use of mosquito nets.**
4. Killing mosquitoes in living quarters.
5. Education of the public as to the mode of spread and methods of prevention of malaria.

Measles

1. *Recognition of the disease.*—Clinical characteristics are fever, catarrhal symptoms in eyes and nose and throat in the prodromal stage, as well as at the height of the disease, an early eruption in the mouth, Koplik spots, later an exanthem and enanthem, and a branny desquamation during convalescence. When the disease is prevalent, or a susceptible child has been exposed to a case of measles, the diagnosis should be suspected on appearance of the fever and catarrhal symptoms, without waiting for confirmatory eruptions, and isolation precautions should be instituted at once.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Buccal and nasal secretions of an infected individual.
4. *Mode of transmission.*—Directly from person to person; indirectly through articles freshly soiled with the buccal and nasal discharges of an infected individual. The most easily transmitted of the communicable diseases.
5. *Incubation period.*—About 8 to 10 days from date of exposure to onset of fever; 12 to 14 days to appearance of rash; rarely as long as 18 days. When convalescent serum has been used, but too late to prevent infection, the incubation period may be as long as 21 days.
6. *Period of communicability.*—During the period of catarrhal symptoms and until the cessation of abnormal mucous membrane secretions—minimum period of 9 days; from 4 days before to 5 days after the appearance of the rash.
7. *Susceptibility and immunity.*—All persons must be considered susceptible until they have had the disease, except that most babies born of mothers who have had the disease are immune for the first 6 months of life. Natural immunity may last into adult life in rare instances. Acquired immunity is usual after recovery from an attack. Passive immunity may be established for a few weeks, but not more than 4, by the use of 4 to 10 cc of convalescent measles serum or 20 to 50 cc of whole blood of immunes, or if citrated blood is used, 25 to 60 cc.
8. *Prevalence.*—Universal. Probably 80 to 90 percent of all persons surviving to the twentieth year of life have had an attack, and rarely does a person go through life without having had measles. Occurs most commonly in chil-

dren between 5 to 14 years of age, but many cases are in children under 5. Endemic in large population units. In remote or insular groups epidemics occur on contact with a case in a visitor. Highest incidence from March to June in North America. Frequency of epidemics depends on size of community, or proximity to a large center, amount of communication between large and small population groups, accretion of population by births and other less exactly determined factors. Much more likely to result in death from complicating pneumonia in children under 2 than at higher ages.

9. *Methods of control*:

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms. Special attention to rise of temperature, Koplik spots and catarrhal symptoms in exposed individuals.
2. Isolation: During period of communicability for the sake of the patient as well as others.
3. Concurrent disinfection: All articles soiled with the secretions of the nose and throat.
4. Terminal disinfection: Thorough cleaning.
5. Quarantine: When the disease is very prevalent and in large communities, quarantine of exposed susceptible children may be impracticable and of no value. Exclusion of exposed susceptible school children and teachers from school until 14 days from last exposure may be justifiable under other conditions. This applies to exposure in the household. Exclusion of exposed susceptible children from all public gatherings for the same period. If the date of only exposure is reasonably certain, an exposed susceptible child of school age may be allowed to attend school for the first 7 days of the incubation period. Quarantining of institutions of young children and of wards or dormitories where exposure is suspected is of some value. Strict quarantine of wards of infants if a case occurs in an institution is important.
6. Immunization: By the use of the serum or whole blood of convalescent patients, or of any healthy adults who have had measles, given within 5 days after exposure to a known case of measles, the attack in the exposed person may be averted in a high percentage of instances; if not averted, the disease is modified. Given later, but at a time prior to the clinical onset of the disease, convalescent serum usually modifies the severity of the attack and the patient probably acquires the usual lasting immunity to the disease.
7. Investigation of source of infection. Search for exposed susceptible children under 3 years of age is profitable. Carriers are not known to occur. Every effort should be made to have all cases reported early in the disease by the physician, or, if there is none in attendance, by parent or guardian. The chief object of discovering cases is to assure suitable care for little children and immunization if practicable of those exposed under 5 years of age.

B. General measures:

1. Daily examination of exposed children and of other possibly exposed persons. This examination should include record of the body temperature. A nonimmune exposed individual exhibiting a rise of temperature of 0.5° C. or more should be promptly isolated pending diagnosis.
2. Schools should not be closed or classes discontinued where daily observation of the children by physician and nurse is provided for.
3. Education as to special danger of exposing young children to those exhibiting fever and acute catarrhal symptoms of any kind, particularly during years and seasons of epidemic prevalence of measles.
4. In institutional outbreaks, immunization with convalescent serum of all minor inmates who have not had measles is of value in checking the spread of infection and in reducing mortality. No new admissions and no visitors under 16 years of age should be permitted in an institution for children, during a measles outbreak in the community or in the institution.
5. The immunization of infants and children under 3 years of age with convalescent serum or whole adult blood in families where cases of measles occur in older children or adults should be encouraged by the department of health and by private physicians.

Meningococcus Meningitis

1. *Recognition of the disease.*—An acute infectious disease with sudden onset, fever, headache, nausea, rigidity of neck, and in epidemics not infrequently petechial spots on the skin. The specific micro-organism in one of its several types may in some cases be found in the early stages by blood culture, and usually during the course of the disease in the spinal fluid, and in the discharges of the retronasal surfaces. The disease occurs in epidemic and sporadic manner.
2. *Etiological agent.*—Meningococcus; *Neisseria intracellularis.*
3. *Source of infection.*—Discharges from the nose and mouth of infected persons. Clinically recovered cases, and healthy persons not known to have had the disease but recently in contact with cases or other carriers may act as carriers and are commonly found, especially during epidemics. Such healthy carriers are found indepenaent of epidemic prevalence of the disease, even up to 5 to 10 percent of a general population.
4. *Mode of transmission.*—By direct contact with infected persons and carriers and indirectly by contact with articles freshly soiled with the nasal and mouth discharges of such persons.
5. *Incubation period.*—Two to ten days, commonly seven; tends to be short in epidemics; in rare instances the period may be longer when a carrier develops the disease.
6. *Period of communicability.*—During the clinical course of the disease and until the specific micro-organism is no longer present in the nasal and mouth discharges of the patient, about 2 weeks. The same applies to healthy carriers so far as affects persistance of infectious discharges. Readily communicable in crowded living conditions among persons of lowered resistance.
7. *Susceptibility and immunity.*—Susceptibility is limited. Acquired immunity from having had the disease, apart from immediate clinical relapses, may be of long duration but is uncertain. There is no artificial immunity. Resistance to infection appears to be low when those exposed to crowded conditions of living are also fatigued and ill fed.
8. *Prevalence.*—Usually low incidence of sporadic cases. Within a community in epidemics at long but irregular intervals. The cases are mostly in children under 10 years of age and in young adults, but occur at all ages. Local epidemics commonly related to chronic or emergency overcrowding of living quarters, as in ships, barracks, and lodging houses or slums, and usually in the winter or spring. No limitations in geographical distribution.
9. *Methods of control:*
   - A. The infected individual, contacts, and environment:
     1. Recognition of the disease and reporting: Clinical symptoms confirmed by the microscopic and bacteriological examination of the spinal fluid, and by bacteriological examination of nasal and pharyngeal secretions.
     2. Isolation of infected persons until 14 days after onset of the disease or until negative swabs are obtained from the naso-pharynx.
     3. Concurrent disinfection: Of discharges from the nose and mouth or articles soiled therewith.
     4. Terminal disinfection: Cleaning.
     5. Quarantine: None.
     6. Immunization: None.
     7. Investigation of source of infection: Impracticable.
   - B. General measures:
     1. Education as to personal cleanliness and necessity of avoiding contact and droplet infection.
     2. Prevention of overcrowding such as is common in living quarters, transportation conveyances, working places, and especially in barracks, camps, and ships.
   - C. Epidemic measures:
     1. **Increase the separation of individuals and the ventilation in living and sleeping quarters for such groups of people as are especially exposed to infection because of their occupation or some necessity of living conditions. Chilling, bodily fatigue, and strain should be minimized for those especially exposed to infection.**

Mumps

1. *Recognition of the disease.*—Acute specific infection characterized by fever, swelling, and tenderness of the salivary glands, usually of the parotid, sometimes of the sublingual or submaxillary glands. Metastases occur sometimes in the ovaries and testicles. Epidemic occurrence is usual, especially in schools, colleges, and barracks, of new recruits. Inflammation of Stenson's duct may assist in early diagnosis. There are no laboratory aids of value.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Secretions of the mouth and possibly of the nose.
4. *Mode of transmission.*—By direct contract with an infected person or with articles freshly soiled with the discharges from the nose and throat of such infected persons.
5. *Incubation period.*—From 12 to 26 days. The most common period 18 days, accepted as usual. A period of 21 days is not uncommon.
6. *Period of communicability.*—Unknown, but assumed to persist until the parotid gland has returned to its normal size.
7. *Susceptibility and immunity.*—Susceptibility believed to be general. Immunity follows an attack but second attacks of the disease are not rare. Brief passive immunity may follow inoculation with convalescent serum or whole blood.
8. *Prevalence.*—This disease is decidedly less prevalent than the other common communicable diseases of childhood such as measles, whooping cough, and chicken pox. Winter and spring are the seasons of greatest prevalence. Its occurrence is sporadic and epidemic except in large cities, where it is endemic.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: The diagnosis is usually made on swelling of the parotid gland.
      2. Isolation: Separation of the patient from nonimmune children and young children and young people and exclusion of the patient from school and public places for the period of presumed infectivity, particularly when the disease appears in children's institutions or among young recruits.
      3. Concurrent disinfection: All articles soiled with the discharges of nose and throat of the patient.
      4. Terminal disinfection: None.
      5. Quarantine: None. Exposed susceptible persons should be regularly inspected for the onset, the presence of initial symptoms of the disease, such as fever, or swelling or pain of the parotid, or submaxillary glands, for 3 weeks from the date of last exposure. Exposed children medically certified as having had the disease should not be excluded from school as susceptibles.
      6. Immunization: None. Passive temporary immunity by convalescent serum or blood still in experimental stage.
      7. Investigation of source of infection: Search for unreported or recent cases among associates of the patient in school or family or other group of young people. Carriers are not known to occur.

   B. General measures: None.

Paratyphoid Fever

1. *Recognition of the disease.*—A general infection with the paratyphoid bacillus characterized especially by continued fever and involvement of the lymphoid tissues of the intestines, enlargement of the spleen, and a variety of constitutional symptoms, sometimes rose spots on the trunk, usually diarrheal disturbance. The infecting micro-organism may be found in the feces, blood, and urine.[5]
2. *Etiological agent.*—Paratyphoid bacillus A, B, or C; *Salmonella paratyphi; Salmonella schottmülleri.*
3. *Source of infection.*—Bowel discharges and urine of infected persons, and water or foods contaminated with such discharges of infected persons or of healthy carriers. Healthy carriers may be numerous in an outbreak.

[5] The human disease paratyphoid fever should not be confused with cases of food poisoning or with infection due to enteritidis bacilli of animal origin.

4. *Mode of transmission.*—Directly by personal contact: indirectly by contact with articles freshly soiled with the discharges of infected persons or through milk, water, or food contaminated by such discharges, probably by flies
5. *Incubation period.*—Four to ten days; average, seven days.
6. *Period of communicability.*—From the appearance of prodromal symptoms, throughout the illness and relapses, during convalescence, and until repeated bacteriological examination of discharges shows absence of the infecting organism.
7. *Susceptibility and immunity.*—Susceptibility is general. Natural immunity probably exists in some adults. Acquired immunity is usually permanent after recovery from the disease. Artificial active immunity of probably 2 years' duration can be developed by the use of vaccines.
8. *Prevalence.*—Frequency has fallen with that of typhoid fever until in most parts of North America it is relatively rare, occurring sporadically or in small local carrier or contact epidemics. Probably nowhere endemic in North America.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms confirmed by specific agglutination test, or by bacteriological examination of blood, bowel discharges, or urine.
      2. Isolation: In fly-proof room, preferably under hospital conditions, of such cases as cannot command adequate sanitary environment and nursing care in their homes.
      3. **Concurrent disinfection: Disinfection of all bowel and urinary discharges and articles soiled with them.**
      4. Terminal disinfection: Cleaning.
      5. Quarantine: None.
      6. Immunization: Of exposed susceptibles.
      7. Investigation of source of infection: Search for common source in polluted water, milk, shellfish or other food, and individual sources as unreported cases and carriers.
   B. General measures:
      1. **Protection and purification of public water supplies.**
      2. **Pasteurization of public milk supplies.**
      3. Limitation of collection and marketing of shellfish to those from approved sources.
      4. Supervision of other food supplies, and of food handlers.[6]
      5. Prevention of fly breeding.
      6. **Sanitary disposal of human excreta.**
      7. Extension of immunization by vaccination to persons especially subject to exposure by reason of occupation and travel, to those living in areas of high endemic incidence of typhoid fever, and to those for whom the procedure can be systematically and economically applied, as military forces and institutional populations, depending on prevalence of the disease.
      8. Discovery and supervision of paratyphoid carriers and their exclusion from the handling of foods.
      9. Exclusion of suspected milk supplies on epidemiological evidence pending discovery and elimination of the personal or other cause of contamination of the milk.
      10. Exclusion of suspected water supplies until adequate protection or purification is provided unless all water used for toilet, cooking, and drinking purposes is boiled before use.

Plague, Bubonic, Septicemic, Pneumonic

1. *Recognition of the disease.*—An acute infection running a rapid, severe course, often terminating fatally, and characterized by extreme weakness, high fever, buboes, severe general symptoms, and often accompanied by subcutaneous hemorrhage and pustules. The infecting micro-organism is regularly found in the buboes and skin lesions, and in the pneumonic type of the disease in the sputum. Pneumonic plague gives the picture of a virulent septic pneumonia.

[6] It is not assumed that an entirely effective supervision of all food handlers can be achieved or would be administratively justified by results in view of the cost. Food handlers to whom epidemiological evidence points as carriers should be brought under control of the health department.

2. *Etiological agent.*—Plague bacillus; *Pasteurella pestis.*
3. *Source of infection.*—Blood of infected rodents and, in the pneumonic form, the sputum of human cases. The primary or indigenous source of the disease is the so-called "wild-plague", the animal reservoir among such rodents as the tarbigan of Manchuria, and the ground squirrel of California. Infection may reach man from these sources, or more often through the medium of the rat.
4. *Mode of transmission.*—Direct, in the pneumonic form. In other forms the disease is generally transmitted by the bites of fleas (*Xenopsylla cheopis* and *Ceratophyllus fasciatus*), by which the disease is carried from rats to man, also by fleas from other rodents. Accidental, by inoculation.
5. *Incubation period.*—Commonly from 3 to 7 days, although occasionally prolonged to 8 or even 14 days.
6. *Period of communicability.*—Pneumonic type intensely communicable during acute symptoms. Bubonic type not communicable from person to person.
7. *Susceptibility and immunity.*—Susceptibility is general, particularly to the pneumonic form. Natural immunity may exist but is rare. Lasting immunity almost always results from recovery from an attack of the disease. Artificial passive immunity of about 3 to 4 weeks' duration by antiplague serum, and active immunity of about 6 months' duration by vaccines may be relied upon.
8. *Prevalence.*—Very rare in North America and insular possessions, and only sporadic cases, from exposure to infection to ground squirrels in California. Endemic in ground squirrels in large areas on Pacific Coast. Occasionally found in rats trapped at seaports.
9. *Methods of control:*

   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms, confirmed by bacteriological examination of blood, pus from glandular lesions, or sputum. Animal inoculation of material from suspected cases.
      2. Isolation: Patient in hospital if practicable; if not, in a screened room which is free from vermin.[7]
      3. Concurrent disinfection: Sputum and articles soiled therewith, in pneumonic type of the disease.
      4. Terminal disinfection: Thorough cleaning followed by fumigation to destroy rats and fleas.
      5. Quarantine: Contacts of pneumonic cases for 7 days.
      6. Immunization: Ordinarily not practicable.
      7. Investigation of source of infection: Search for human (in pneumonic) and rodent (in bubonic) sources to which patient is known to have been exposed, among wild rodents, and particularly the rat.

   B. General measures:
      1. Extermination of rats and vermin by use of known methods for their destruction; destruction of rats on ships arriving from infected ports; examination of rats, ground squirrels, etc., in areas where the infection persists, for evidence of endemic or epidemic prevalence of the disease among them.
      2. Rat-proofing of buildings and elimination of breeding places and opportunities for the harboring and feeding of rats as a fundamental sanitary measure.
      3. Investigation of all deaths during epidemics with autopsy and laboratory examination when indicated.
      4. Handling of corpse under antiseptic precautions.

Pneumonia, Acute Lobar

1. *Recognition of the disease.*—An acute infection characterized by sudden onset with chill followed by fever, often pain in the chest, usually cough and dyspnoea. In many cases in children, vomiting and convulsions occur at the onset. Determination of the infecting micro-organism by microscopic and cultural examination of the sputum is useful as an aid in therapy and

[7] In plague pneumonia, personal prophylaxis to avoid droplet infection must be carried out by persons who come in contact with the sick. Masks of closely woven cloth with mica windows should be worn over the head and to the shoulders. A long gown and rubber gloves drawn over the sleeves of the gown should be provided. These articles should not be removed from the sick room until disinfected.

for epidemiological studies. The X-ray may disclose pulmonary lesions before the stethoscope.

2. *Etiological agent.*—Various pathogenic bacteria commonly found in the nose, throat and mouth, such as the pneumococcus in about 95 percent of the cases, and of these, 50 percent types I and II; the bacillus of Friedländer; in occasional cases, the hemolytic streptococcus; the influenza bacillus, etc.
3. *Source of infection.*—Probably discharges from the mouth and nose of infected person or carrier and articles freshly soiled with such discharges. Fxcept when already attacked by some respiratory infection, exposed individuals rarely develop pneumonia as a result of transmission of infection by direct or indirect means from the patient.
4. *Mode of transmission.*—By direct contact with infected person or carrier, or with articles freshly soiled with the discharges of the nose and throat of such persons, and possibly from infected dust of rooms occupied by infected persons.
5. *Incubation period.*—Believed to be short, usually 1 to 3 days—not well determined.
6. *Period of communicabilty.*—Unknown; presumably until the discharges of the mouth and nose no longer carry the infectious agent in an abundant amount or in a virulent form.
7. *Susceptibility and immunity.*—Susceptibility is general, accentuated by wet and cold and exposure, and apparently under certain conditions by bodily and mental fatigue, and by alcoholism. Natural immunity may occur, follow an attack of pneumonia; such immunity is of short duration. Artifi- but is doubtful. Acquired immunity to the particular micro-organism may cial active or passive immunity cannot be relied upon.
8. *Prevalence.*—Common, and affecting at one time or other, between adolescence and old age, a large proportion of the population. No race or color or either sex is exempt from likelihood of having this disease. Occurs in all climates and seasons, but most often in winter and spring and in regions where cold, windy, changeable, and inclement weather prevails.
9. *Methods of control:*
   - A. The infected individual, contacts, and environment:
     1. Recognition of the disease and reporting: Clinical symptoms. Specific infecting organisms may be determined by serological and bacteriological tests early in the course of the disease, which may give basis for epidemiological studies and for specific serum therapy.
     2. Isolation: Medical aseptic technique preferably at home.
     3. Concurrent disinfection: Discharges from the nose and throat of the patient.
     4. Terminal disinfection: Thorough cleaning and airing.
     5. Quarantine: None.
     6. Immunization: None.
   - B. General measures:
     1. Whenever practicable and particularly in institutions, barracks, and on shipboard, crowding in living and sleeping places should be avoided. The general resistance should be conserved by good food, fresh air, sufficient sleep, temperance in the use of alcoholic beverages, and other hygienic measures.

Poliomyelitis

1. *Recognition of the disease.*—An acute infection with moderate initial fever, usually headache and gastro-intestinal symptoms such as vomiting and constipation, drowsiness alternating with irritability, hyperesthesia, stiffness of neck and spine, usually accompanied by an increase in pressure and in the number of cells in the spinal fluid, tremor, and exaggeration of the muscular reflexes. Later, local diminution of reflexes and local motor weakness (paralytic). Any of these symptoms may be absent, but the diagnosis of the cases which are not at some time paralytic is so frequently uncertain that only paralytic cases should be counted officially as poliomyelitis, due precautions being taken in the others. Paralysis may be sudden and cause death within a few hours of onset by cessation of respiration without clear-cut symptoms. There is a marked tendency for the paralysis to improve after it has reached its height.
2. *Etiological agent.*—A specific filterable virus.

3. *Source of infection.*—Nose and throat discharges of infected persons and carriers, or articles recently soiled therewith. Unpasteurized milk is a rare source of infection.
4. *Mode of transmission.*—The virus enters the brain by way of the olfactory nerves and bulb when introduced into the nose or nasopharynx of a susceptible person, presumably from a carrier in most instances.
5. *Incubation period.*—Commonly 7 to 14 days.
6. *Period of communicability.*—Not definitely known, but apparently covered by the latter part of the incubation period and the first week or two of the disease—possibly much longer in a very few cases, but cases are not as a rule directly traceable to any previous case.
7. *Susceptibility and immunity.*—Infants born of immune mothers are believed to retain their immunity for about 1 year. Children are more frequently susceptible than adults except in extremely isolated communities not previously reached by the infection. Immunity is usually high among adults who have lived in large cities, less among those in rural sections. An attack of the disease gives permanent immunity as a rule, although second attacks have been observed.
8. *Prevalence.*—Infection occurs practically throughout the world, but cases are most frequent in the cooler part of the temperate zone, occurring both sporadically and in epidemics at irregular intervals, with the highest incidence in late summer and fall. Ten cases per 100,000 population per year is an ordinary incidence.
9. Methods of control:
   - A. Infected individual, contacts, and environment:
     1. Recognition of the disease and reporting: Clinical symptoms, assisted by microscopical and chemical examination of the spinal fluid if lumbar puncture is performed.
     2. Isolation: For 2 weeks from onset. Almost invariably the period of restriction of visitors and care in bed desirable for the patient extends beyond the period of presumed communicability of the disease.
     3. Concurrent disinfection: Nose and throat discharges and articles soiled therewith.
     4. Terminal disinfection: None.
     5. Quarantine: Exposed children of the household of school age are to be kept from school, and adults of the household whose vocations bring them into contact with children or with food to be eaten uncooked are to be kept from such vocation for 14 days from last exposure to recognized case.
     6. Immunization: None.
     7. Investigation of source of infection: Search for and expert diagnosis of sick children to locate unrecognized and unreported cases of the disease.
   - B. General measures during epidemics:
     1. General warning to physicians and the laity of the prevalence or increase of incidence of the disease, description of usual characteristics of onset, and necessity for diagnosis and medical care, particularly for bed rest of patients and protection of their muscles.
     2. All children with fever should be isolated pending diagnosis.
     3. Education in such technique of bedside nursing as will prevent distribution of infected discharges to others from cases isolated at home.
     4. Protection of children so far as practicable against unnecessary contact with other persons, especially those outside their own homes, during epidemic prevalence of the disease.
     5. Avoidance of unnecessary physical strain in children during an epidemic or in case of known exposure.

Psittacosis

1. *Recognition of the disease.*—The clinical criteria are an onset with chilly sensations, fever, headache; early pneumonic involvement; cough absent or usually nonproductive at first, later usually present and productive; sputum light yellow and characterized by extreme viscosity; tongue, white coat; anorexia extreme; constipation the rule; pulse usually slow in relation to temperature; great prostration; delirium common; albuminuria almost

constant; relapses not uncommon. The white blood count is normal or slightly increased early, with leucopenia later. The disease may be transmitted to healthy susceptible birds or mice by inoculating blood drawn during first week of illness; the diagnostic criteria are the characteristic pathological changes in mice with the presence of elementary bodies (Leventhal-Coles-Lillie) in impression smears from the spleens of mice; the sputum, if obtainable, is more uniformly infectious than the blood; repeated trials are necessary.

2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Newly acquired parrots, parrakeets, love birds, or canaries. Birds which are apparently well occasionally transmit the infection.
4. *Mode of transmission.*—Contact with infected birds or their recent surroundings. Occasionally through a human case.
5. *Incubation period.*—In human cases, 6 to 15 days.
6. *Period of communicability.*—Ill birds and their surroundings highly infectious for man; patients less dangerous. The period of communicability of human cases is during their acute illness, especially when coughing.
7. *Susceptibility and immunity.*—All ages susceptible, but the disease is more severe in the higher age groups. One attack confers immunity.
8. *Prevalence.*—Usually in sudden house outbreaks among persons exposed to ill tropical birds. Deaths mainly confined to persons over 30 years of age. Females more frequently attacked than males because of more frequent exposure. Case fatality 20 to 50 percent.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting.
      2. Isolation: Important during the febrile and acute clinical stage of the disease. When actually handling patients with a cough, nurses should wear gauze masks, 8 layers of 40 to 48 threads per inch, or 16 layers 20 to 24 threads per inch.
      3. Concurrent disinfection: Of all discharges.
      4. Terminal disinfection: Incriminated birds should be killed and their bodies immersed in 2-percent cresol. The spleens then should be aseptically removed, placed in equal parts of sterile glycerin and standard phosphate buffer solution of pH 7.5, or in suitable fixative, and sent to the nearest available laboratory for examination. Carcasses should be burned before feathers dry.
      5. Quarantine: Buildings which housed birds should be quarantined until thoroughly cleaned and disinfected.
      6. Immunization: No demonstrated method yet fully accepted.
      7. Investigation of source of infection: Important, in order to trace infected lots of birds. Though apparently healthy birds occasionally convey the disease, healthy human carriers are unknown.
   B. General measures—
      1. Strict regulation of traffic in birds of parrot family based on quarantine and laboratory examination.
      2. Quarantine of homes and pet shops known to have harbored infected birds until thoroughly cleaned.
      3. Education of community in the danger of making house pets of birds of the parrot family, particularly when the birds have been recently imported or are of doubtful history as to contact with other and especially with sick birds of tropical origin.

Puerperal Infection (Puerperal Septicemia)

1. *Recognition of the disease.*—Rise of temperature and local and general symptoms of bacterial invasion of the genital tract of the postpartum patient. Bacteriological examination of discharges and surfaces of the vagino-uterine tract may identify the infecting organism.
2. *Etiological agent.*—Usually a hemolytic streptococcus, staphylococcus, or other pus-forming micro-organism among those commonly found on the hands, in the nose and throat, and in infected wounds.
3. *Source of infection.*—The hands and instruments used in the examinations just prior to or during or following confinement; the nose and throat of the parturient woman or her attendants just prior to, during, or just after confinement; infectious processes and discharges of the genital tract prior to confinement.

4. *Mode of transmission.*—Direct transfer to the tissues of the parturient canal by hands, instruments, dressings, by droplets discharged in speaking, sneezing or coughing from infected or carrier individuals brought into close relation to the patient during or after delivery. Indirectly by articles soiled by infectious discharges brought into contact with the genital tract of the patient.
5. *Incubation period.*—One to three days; rarely longer.
6. *Period of communicability.*—Not communicable among parturient or postpartum cases except through the intermediate transmission of infection by attendants.
7. *Susceptibility and immunity.*—Terms not properly applicable. The chief factors of susceptibility are the state of the parturient canal during and after confinement, the state of exhaustion, or fatigue, or chilling, and loss of blood following delivery, and the exposure of mucous membranes to trauma and contact in the course of the delivery. There is no immunity by artificial means except such as derived from care and cleanliness in the antepartum, delivery, and postpartum care of the mother.
8. *Prevalence.*—The most common cause of preventable sickness and death related to child bearing.
9. *Methods of control:*
   1. Better education of physicians, nurses, and midwives in the science and art of midwifery.
   2. Licensing and supervision of midwives where better attendance at childbirth cannot be provided.
   3. Official supervision or licensing of all institutions offering maternity services.
   4. Education of women in the hazards of self-interruption of pregnancy.

Rabies

1. *Recognition of the disease.*—In the human being this acute, specific, rapidly fatal infection may not be recognized until a spasm of deglutition appears, unless the earlier and mild constitutional symptoms such as an expression of anxiety, paresthesias especially in or near the wound, and some paralysis have been looked for after the bite of a rabid animal. In the dog or other animal, recognizable symptoms are any unexplained change in behavior followed by excitability or paralysis, and death within 10 days of onset of symptoms. Verification of cause of death may be established by discovery of Negri bodies in nerve cells of brain or cord, or by animal inoculation.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Saliva of infected animals, chiefly dogs.
4. *Mode of transmission.*—Inoculation of denuded tissue with saliva of infected animals, almost always by bites.
5. *Incubation period.*—Usually 2 to 6 weeks. May be prolonged to 6 months or even longer. Duration depends on virulence of saliva and on site of wound in relation to richness of nerve supply and directness of nerve path to brain.
6. *Period of communicability.*—For 15 days in the dog before the onset of clinical symptoms and throughout the clinical course of the disease. Only slightly communicable in man.
7. *Susceptibility and immunity.*—Susceptibility general. Natural immunity is not known to exist in man or among the animals subject to the disease. Prophylactic antirabic treatment of infected humans will prevent development of the disease, with rare exceptions, if the treatment is begun soon after the injury and the site of the wound is not extensive in the distribution of the facial nerve.
8. *Prevalence.*—Rare in man; more likely to occur in males than females and most often in persons under 20 years of age. Worldwide distribution. Universally fatal in developed human cases. More prevalent among dogs and sometimes in wild carnivorous animals.
9. *Methods of control:*

   A. The infected individual, contacts, and environment:
   1. Recognition of the disease and reporting: Clinical symptoms, confirmed by the presence of Negri bodies in the brain of the animal which has caused the injury, and by animal inoculations with material from the brain of such animal.

2. Isolation: None if the patient is under adequate medical supervision, and the immediate attendants are warned of possibility of inoculation by human virus.
3. Concurrent disinfection of saliva of patient and articles soiled therewith.
4. Terminal disinfection: Thorough cleaning.
5. Quarantine: None.
6. Immunization: Preventive vaccination of the patient after exposure to infection by inoculation.
7. Investigation of source of infection: Search for the rabid animal and for any animals bitten by it. Carriers in animals are not known to occur.

B. General measures:
1. Detention and examination of dogs suspected of having rabies.
2. Immediate antirabic treatment of people bitten by dogs or by other animals suspected or known to have rabies, unless the animal is proved not to be rabid by subsequent observation or by microscopic examination of the brain and cord. The wound caused by any bite of a rabid animal should be treated at once to the depths with fuming nitric acid, with complete protection of the eye in the case of face bites.
3. Education in the care of dogs, especially directed to dog owners and the police, including advice against shooting of rabid or suspected animals in the head lest the laboratory examination of the brain be rendered difficult or impossible. Dog owners should be impressed with the serious implications of keeping dogs in densely built up cities.
4. Control of dog population by requiring annual license, provision for the impounding and the humane destruction of all unlicensed dogs, quarantine of all dogs in areas where rabid animals have run at large.

Rocky Mountain Spotted (or Tick) Fever

1. *Recognition of the disease.*—The characteristic rash with fever, the possibility of a tick bite, and a positive Weil-Felix test constitute the diagnostic criteria.
2. *Etiological agent.*—A gram-negative, intracellular micro-organism which has not been cultivated or filtered (*Dermacentroxenus rickettsi* Wolbach).
3. *Source of infection.*—Ticks.
4. *Mode of transmission.*—Bite of tick or mashing tick on skin.
5. *Incubation period.*—From 3 to about 10 days.
6. *Period of communicability.*—Not communicable from man.
7. *Susceptibility and immunity.*—Susceptibility general. One attack confers immunity. Active artificial immunization by Spencer-Parker vaccine has given very encouraging results.
8. *Prevalence.*—Probably occurs occasionally throughout tick-infested regions of the Western Hemisphere, but especially in the Rocky Mountain area. The season of occurrence is predominantly in the spring and early summer, corresponding to the appearance of adult ticks. The case fatality varies with the locality—90 percent in some areas and as low as 5 percent in others.
9. *Methods of control:*

A. The infected individual, contacts, and environment:
1. Recognition of the disease and reporting: All cases of the disease should be reported to the health authorities.
2. Isolation: None.
3. Concurrent disinfection: All ticks on the patient should be destroyed.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Investigation of source of infection: Determination of areas where there are infected ticks should be attempted wherever practicable.

B. General measures:
1. Personal prophylaxis of persons entering the infected zones during the season of ticks by wearing tick-proof clothing, and careful search of the body for ticks which may have attached themselves.
2. The destruction of ticks by clearing and burning vegetation on the lands in infected zones.
3. The destruction of ticks on domestic animals by dipping.
4. The destruction of small mammalian hosts of ticks, such as ground squirrels, chipmunks, and meadow mice.

Scarlet Fever

1. *Recognition of the disease.*—Sudden onset with nausea, vomiting, fever, and sore throat; rash (bright red spots on subcuticular flush) on second or third day. Cases occur without eruption, when provisional diagnosis may be made on sore throat, fever, vomiting, and history of exposure. The Schultz-Charlton blanching phenomenon may be used when rash has recently appeared: one-tenth to one-half cc convalescent serum or scarlet fever antitoxin is injected into skin where rash exists, which causes local blanching in 6 to 36 hours if rash is scarlatinal; absence of blanching, however, does not rule out scarlet fever.
2. *Etiological agent.*—A hemolytic streptococcus.
3. *Source of infection.*—Discharges from the nose, throat, ears, abscesses, or wound surfaces of sick or convalescent patients, and articles freshly soiled therewith. The nose and throat discharges of carriers may also spread the disease.
4. *Mode of transmission.*—Directly by contact with an infected person, indirectly by articles freshly soiled with discharges of an infected person, or through contaminated milk or milk products, not by skin desquamation.
5. *Incubation period.*—Two to seven days, usually three to four days.
6. *Period of communicability.*—Usually until 3 weeks from the onset of the disease, without regard to the stage or extent of desquamation, but until all abnormal discharges have ceased and all open sores or wounds have healed. Adults convalescent from scarlet fever appear to be less likely to transmit infection than are children. The infectious agent is more likely to be transmitted in colder seasons of the year.
7. *Susceptibility and immunity.*—Susceptibility is not general, particularly among adults. Unnoticed infections occur and produce immunity. Lasting immunity is usual after an attack, but not invariable, as second attacks occur. Artificial passive immunity of a few weeks may be developed by human convalescent serum. Artificial active immunity of uncertain duration can be developed in a considerable proportion of susceptible persons by the use of a suitable streptococcus antigen.
8. *Prevalence.*—Found in all parts of the world but unimportant in tropics and of low incidence in subtropical areas of North America. Commoner in urban than in rural areas. In cities about 80 percent of the cases occur in children under 10, and 60 percent in those under 5 years of age. About 5 percent of total deaths from scarlet fever occur in children under 1 year of age. Most common in winter and spring.
9. *Methods of control:*
   - A. The infected individual, contacts and environment:
     1. Recognition of the disease and reporting: By clinical symptoms.
     2. **Isolation: In home or hospital, maintained in each case until the end of the period of communicability. If medical inspection is not available, isolation for 21 days from onset for uncomplicated cases.**
     3. Concurrent disinfection: Of all articles which have been in contact with a patient and all articles soiled with discharges of the patient.
     4. Terminal disinfection: Thorough cleaning.
     5. Quarantine: Exclusion of exposed children and teachers from association with children, and food handlers from their work, until 7 days have elapsed since last exposure to a recognized case.
     6. Immunization: Exposed susceptibles, as determined by the Dick test, may be passively immunized by convalescent scarlet fever serum or scarlet fever antitoxin, under special circumstances.
     7. Investigation of source of infection: Search for individual source in contact cases or carrier, and in unpasteurized milk and milk products. It is important to discover undetected cases and convalescent and contact carriers.
   - B. General measures:
     1. Daily examination of exposed children and of other possibly exposed persons for a week after last exposure. Encourage removal of young susceptible contacts in the family to homes of adult friends for duration of communicable stage in the patient,

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2. Schools should not be closed where daily observation of the children by a physician or nurse can be provided for.
3. In school and institutional outbreaks immunization of all exposed children with scarlet-fever toxin may be advisable.
4. In the presence of a sharp outbreak, modified isolation of persons with sore throat or upper respiratory tract infection, at least through the clinically active stage, particularly if exposure to scarlet fever patients be determined.
5. Education as to special danger of exposing young children to those exhibiting acute catarrhal symptoms of any kind.
6. Pasteurization of milk supply.

Septic Sore Throat

1. *Recognition of the disease.*—Acute sore throat appearing in epidemic outbreaks, often of a highly virulent character, and accompanied by various general septicemic manifestations. The onset is likely to be abrupt with chill, high temperature, and vomiting.
2. *Etiological agent.*—Streptococcus (hemolytic type).[7]
3. *Source of infection.*—The human naso-pharynx, usually the tonsils, any case of acute streptococcus inflammation of these structures being a potential source of infection, including the period of convalescence of such cases. The udder of a cow infected by the milker is a common source of infection. In such udders the physical signs of mastitis may be absent.[8]
4. *Mode of transmission.*—Direct or indirect human contact; consumption of raw milk contaminated by case or carrier or from an infected udder.
5. *Incubation period.*— One to three days.
6. *Period of communicability.*—In man, presumably during the continuance of clinical symptoms; in the cow, during the continuance of discharge of the streptococci in the milk, the condition in the udder tending to a spontaneous subsidence. The carrier stage may follow convalescence and persist for some time.
7. *Susceptibility and immunity.*—Susceptibility general, but somewhat less, in young children. Immunity, either natural or acquired, is rare and uncertain, if it occurs at all.
8. *Prevalence.*—Usually in epidemics, in any geographic area except where milk supply is pasteurized. Most cases in adolescents and adult milk drinkers. Most often in spring and early summer, but may occur at any season.
9. *Methods of control*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms. Bacteriological examination of the lesions or discharges from the tonsils and naso-pharynx may be useful.
      2. Isolation: During the clinical course of the disease and convalescence, and particularly exclusion of the patient from participation in the production or handling of milk or milk products.
      3. Concurrent disinfection: Articles soiled with discharges from the nose and throat of the patient.
      4. Terminal disinfection. Cleaning.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Search for cases and carriers among milkers and other handlers of unpasteurized milk, and for mastitis in milk cows.
   B. General measures:
      1. Exclusion of suspected milk supply from public sale or use until pasteurized. The exclusion of the milk of an infected cow or cows in small herds is possible when based on bacteriological examination of the milk of each cow, and preferably the milk from each quarter of the udder at frequent intervals. Exclusion of human cases or carriers from handling milk or milk products.
      2. **Pasteurization of all milk.**
      3. Education in the principles of personal hygiene and avoidance of the use of common towel, drinking and eating utensils.

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[7] Bovine mastitis of staphylococcus origin may lead to epidemic outbreaks of gastro-intestinal disturbance in those who drink unpasteurized milk from a cow so infected.

[8] Mastitis in the cow, due to bovine streptococci, is not a cause of septic sore throat in human beings unless a secondary infection of the udder by a human type of streptococcus takes place.

Smallpox

1. *Recognition of the disease.*—Onset sudden, usually with chills, a febrile stage of 3 or 4 days with dizziness, headache, backache, general pains, nausea, and vomiting. Macular eruption on third day changing in next 8 days to papule, vesicle, pustule, and crust, leaving a scar. Eruption general and symmetrical, especially on extensor surfaces; earliest on face and more on shoulders and chest than lower on trunk. Lesions are deep seated and have infiltrated base.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Lesions of the mucous membranes and skin of infected persons.
4. *Mode of transmission.*—By contact with persons sick with the disease. This contact need not be intimate, but aerial transmission through more than a few feet is unlikely; by articles or persons contaminated by discharges of the sick, including feces and urine, but for a brief time.
5. *Incubation period.*—Eight to sixteen days. (Cases with incubation period of 21 days are reported.)
6. *Period of communicability.*—From first symptoms to disappearance of all scabs and crusts.
7. *Susceptibility and immunity.*—Susceptibility universal. Acquired permanent immunity usually follows recovery from an attack of the disease. Second attacks are rare. Artificial immunity by vaccination is usually complete for 5 to 20 years, but relative susceptibility often occurs after 5 years.
8. *Prevalence.*—Distribution in sporadic or epidemic form; varies widely according to the immunity status of the population of an area and its exposure to infection from without. Cases occur most often in young adult males. In communities where few persons of any age have been vaccinated, the disease when it occurs will be chiefly among young children. Occurrence is most frequent in the winter and least in summer months. There is no regional or climatic limitation to its prevalence except as population groups are more or less well protected by vaccination.
9. *Methods of control:*

   A. The infected individual, contacts, and environment:

   1. Recognition of the disease and reporting: Clinical symptoms. The rapidly fatal or fulminating type and the very mild type may escape diagnosis until secondary cases appear.
   2. **Isolation: Hospital isolation in screened wards, free from vermin, until the period of infectivity is past.**
   3. Concurrent disinfection of all discharges: No article to leave the surroundings of the patient without boiling or equally effective disinfection.
   4. Terminal disinfection: Thorough cleaning and disinfection of premises.
   5. Quarantine: Isolation of all contacts until vaccinated with virus of full potency, and daily medical observation of these contacts until height of reaction is passed, if vaccination was performed within 24 hours of first exposure; otherwise for 16 days from last exposure.
   6. **Immunization: Vaccination.**
   7. Investigation of source of infection: The immediate prior case should be sought industriously, and cases of reported chicken pox in persons over 15 years of age carefully reviewed for error of diagnosis. Active cases of the disease without constitutional symptoms must be sought, also passive carriers recently in contact with cases, and exposed vaccinated persons who may have developed unrecognized forms of the disease, and thus be serving as sources of infection.

   B. General measures:

   1. **General vaccination in early infancy, revaccination of children on entering a school, and of entire population when the disease appears in a severe form.**
   2. In order to avoid possible complications or secondary and subsequent infections at the site of vaccination, it is important that the vaccination insertion be as small and superficial as practicable, not over one-eighth inch in any direction, and that the site be kept dry and cool. The use of shields or other dressings

is to be condemned. The multiple pressure method is recommended. Primary vaccination as soon after 1 week of age as possible is desirable. The time of vaccination should be adjusted to avoid skin lesions elsewhere on the body, and in older children to avoid the warmer months. Particular care should be used in primary vaccinations beyond the age of infancy.

Syphilis

1. *Recognition of the disease.*—A disease acquired by contact or transmission in utero, running a chronic course with local and constitutional manifestations, usually in a definite sequence although of infinite variety. The lesion is an infectious granuloma, similar to that seen in tuberculosis and leprosy, in the acquired disease usually on mucous or muco-cutaneous area of sexual contact. Confirmation of diagnosis is practicable and should be established in every instance by finding the spirochete in the lesions or discharges or by positive serological findings.
2. *Etiological agent.*—*Treponema pallidum* (*Spirochæta pallida*).
3. *Source of infection.*—Discharges from the lesions of the skin and mucous membranes, the blood of infected persons, and articles freshly soiled with such discharges or blood in which the *Treponema pallidum* is present.
4. *Mode of transmission.*—By direct personal contact with infected persons and indirectly by contact with discharges from lesions or with the blood of such persons, by sexual intercourse chiefly, by kissing, by dental and other surgical or technical accidents, congenitally from syphilitic mother through the placenta.
5. *Incubation period.*—About 3 weeks, minimum 10 days, occasionally 6 weeks or longer.
6. *Period of communicability.*—As long as the lesions are open upon the mucous membranes or skin, but practically limited to the first 2 years of the disease.
7. *Susceptibility and immunity.*—Susceptibility is universal, especially when moist surfaces of infected and exposed persons are brought into direct contact. Natural or acquired immunity is not known to exist. One attack and recovery does not protect against subsequent infection.
8. *Prevalence.*—Widespread in all regions of the world, regardless of race, climate, or geography, or of sex or age. Prevalence varies from less than one-half of 1 percent to 30 percent and over of local population groups, averaging probably about 5 percent of all the people of North America. Occurs in sporadic, local, or group epidemic, and commonly endemic form. Most commonly acquired by unmarried males between 20 and 40 years of age. Occurs in about 10 percent of all pregnant women. Most frequent among Negroes.
9. *Methods of control:*

   A. The infected individual, contacts, and environment:

   1. Recognition of the disease and reporting: Clinical symptoms, confirmed by microscopical examination of discharges and by serum reactions. Diagnosis is essentially a laboratory problem and treatment should never be instituted without laboratory confirmation.
   2. Isolation: Essential for noncooperative patients at least until surface lesions have healed. No person in the communicable stage of syphilis should be permitted to engage in occupations of personal service in which he or she may infect others with syphilis, such as those of nurse or nursemaid, domestic servant, barber, hairdresser, chiropodist, manicurist, bath attendant, masseur, wet nurse. Sexual intercourse should be specifically warned against and so far as possible prevented for persons with syphilis until declared to be free from infection, by the physician responsible for treatment of the patient.
   3. Concurrent disinfection of discharges and of articles soiled therewith.
   4. Terminal disinfection: None.
   5. Quarantine: None.
   6. Immunization: None.
   7. Investigation of source of infection: Each case, particularly those cases of presumably recent origin, as the congenital form of the disease in infants, and first- and second-stage cases of the ac-

quired disease, should be traced to the probable source of infection, appropriate control and treatment of this spreader of disease instituted, and further exposed contacts examined for unsuspected or unreported cases.

B. General measures:

1. **Provisions for accurate and early diagnosis and careful treatment of infected persons, with due consideration for privacy of record, consistent with effective control of the patient, search for source of infection, and provision for following cases until cured.**
2. Education in matters of sexual hygiene, particularly as to the fact that continence in both sexes and at all ages is compatible with health and normal development.
3. Repression of commercial prostitution and associated use of alcoholic beverages, by means of the police or other competent authority.
4. Restriction of advertising of services or medicines for self-treatment of sex diseases, etc.
5. Elimination of the use of common towels, cups, and toilet articles from public places.
6. Serological as well as clinical examination for syphilis should be part of the routine prenatal supervision of the expectant mother and if she is found to be infected, antisyphilitic treatment should be begun if possible before the end of the fifth month of pregnancy.
7. Personal prophylaxis should be advised and be made available for use immediately after sexual intercourse to those who expose themselves to infection.

Tetanus

1. *Recognition of the disease.*—An acute infectious disease caused by the toxin of the tetanus bacillus; characterized by painful muscular contractions, first and principally of the masseter and neck muscles, and secondly those of the trunk; rarely the rigidity is confined to the region of the injury. A history and usually physical evidence of a wound of entry for infection is found. Bacteriological examination and mouse inoculation may be useful in confirmation of diagnosis.
2. *Etiological agent.*—Tetanus bacillus; *Clostridium tetani.*
3. *Source of infection.*—Animal manure, human feces, soil, and street dust.
4. *Mode of transmission.*—Wound infection.
5. *Incubation period.*—Commonly 4 days to 3 weeks, dependent somewhat upon the character, extent, and location of the wound. Longer periods of incubation have been noted. Subsequent operative interference or local tissue changes may initiate the activity of quiescent bacilli at even lengthy intervals after the original wound infection.
6. *Period of communicability.*—Patient not infectious except in rare instances where wound discharges are infectious.
7. *Susceptibility and immunity.*—Susceptibility general, but inoculated bacilli often fail to produce toxin. Artificial passive immunity for about 10 days' duration can be relied upon from the use of tetanus antitoxin. An active immunity may be produced by the use of tetanus toxoid.
8. *Prevalence.*—World-wide distribution, following wound infection. Most frequent in North America among young males and in summer. Prevalent especially following wounds contaminated with manured soil.
9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms may be confirmed bacteriologically.
2. Isolation: None.
3. Quarantine: None.
4. Immunization: Ordinarily a subcutaneous injection of tetanus antitoxin (1,500 units) given on the day of the wound. A second injection within 10 days may be desirable in certain instances.
5. Investigation of source of infection: Of only academic interest, as the infecting organism is widely spread, especially through animal feces, in all inhabited places.

6. Concurrent disinfection: None.
7. Terminal disinfection: None.

B. General measures:
1. Educational progaganda such as "safety first" campaign, and "safe and sane Fourth of July" campaign.
2. **Prophylactic use of tetanus antitoxin where wounds have been acquired in regions where tetanus is prevalent, and in all cases where contaminated material may be embedded in the wound.**
3. **Removal of all foreign matter as early as possible from all wounds.**

Trachoma

1. *Recognition of the disease.*—A specific destructive chronic inflammation of the conjunctiva, characterized by formation of granulations, either papillary or follicular, leading ultimately to formation of scar tissue and deformity of the eyelids. Microscopic examination of the conjunctival discharges and scrapings cannot be relied upon as an aid to diagnosis, but may exclude other infections.
2. *Etiological agent.*—Undetermined.
3. *Source of infection.*—Secretions and purulent discharges from the conjunctivae and adnexed mucous membranes of the infected persons.
4. *Mode of transmission.*—By direct contact with infected persons and indirectly by contact with articles freshly soiled with the infective discharges of such persons.
5. *Incubation period.*—Undetermined.
6. *Period of communicability.*—During the persistence of lesions of the conjunctivae and of the adnexed mucous membranes or of discharges from such lesions.
7. *Susceptibility and immunity.*—Susceptibility is general, greater in children than in adults and increased by malnutrition, chronic irritation by dust, wind, exposure to the sun, and by carelessness of personal cleanliness. Natural or acquired immunity is not known to occur.
8. *Prevalence.*—Not uncommon in immigrants from southern and eastern Europe. Incidence high among mountain population of southern Appalachians, and to an extent of 5 to 25 percent among plains and Pueblo Indians of the United States. In Canada the main focus is in southern Manitoba; rare in white, native born Canadians; in Indians, cases are distributed from Ontario westward through the prairie provinces and into British Columbia. Cases most common among children but may occur and persist at any age.
9. *Methods of control:*

A. The infected individual, contacts, and environment:
1. Recognition of the disease and reporting: Clinical symptoms.
2. Isolation: Exclusion of the patient from general school classes. Isolation of the patient is not necessary if he is properly treated and instructed in precautions against spread of secretions of the eye to others by common use of articles.
3. Concurrent disinfection of discharge and articles soiled therewith.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Careful search should be made of persons in any way intimately related or exposed to the patient, particularly members of the household, and play and schoolmates. Carriers are not known to occur, but apparently healed scars of old lesions may be the site of reactivity and become sources of infection.

B. General measures:
1. **Search for cases by examination of school children, or immigrants, and among the families and associates of recognized cases; in addition, search for acute secreting disease of conjunctivae and adnexed mucous membranes, both among school children and in their families, and treatment of such cases until cured.**
2. Elimination of common towels and toilet articles from public places.

3. Education in the principles of personal cleanliness and the necessity of avoiding direct or indirect transference of body discharges.
4. Control of public dispensaries where communicable eye diseases are treated, and creation of special treatment classes where the disease prevails.
5. **Exclusion of infected immigrants at national boundaries, or preferably at foreign port of embarkation.**
6. **Routine examination of eyes of children admitted to institutions, or in industrial camps where the disease is prevalent.**
7. Under certain conditions in areas of widespread prevalence of the disease, the prophylactic use of solutions of zinc sulphate (1 percent) or copper sulphate (0.5 percent) may prove a valuable protective measure for children.

Trichinosis

1. *Recognition of the disease.*—In human beings confined to persons who have eaten raw or insufficiently cooked fresh pork products, occasionally bear meat, and characterized by onset of variable intensity according to the amount of infested meat eaten and the abundance of the trichinae in the meat. The symptoms of invasion may be mild or of severe gastro-intestinal disturbance. Muscle soreness or pain, edema of face and eyelids, weakness and distress are accompanied by a marked eosinophilia. Microscopic examination of the stools for adult worms, and of teased specimen of deltoid muscle for suspected embryos is helpful. Occasionally examination of the uncooked pork will reveal the parasites.
2. *Etiological agent.*—*Trichinella spiralis.*
3. *Source of infection.*—Uncooked or insufficiently cooked pork, rarely meat of other animals.
4. *Mode of transmission.*—Direct from meat to man through consumption of undercooked infected pork products.
5. *Incubation period.*—Variable; usually about 1 week.
6. *Period of communicability.*—Disease is not transmitted by human host to man.
7. *Susceptibility and immunity.*—Susceptibility is general. Neither natural nor acquired immunity is known to occur.
8. *Prevalence.*—World-wide, but uncommon. No selection by age, sex, race, region, season, or climate except as these affect the custom of eating the insufficiently cooked flesh of infested hogs or other animals.
9. *Methods of control:*
   A. The infested individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms, confirmed by microscopical examination of blood for eosinophilia, and about the third week for encysted larvae in muscle tissue.
      2. Isolation: None.
      3. Concurrent disinfection: Sanitary disposal of the feces of the patient.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Every effort should be made to trace each case to a definite or probable source of raw or undercooked pork. Where hogs are fed on, or have access to, human offal, and human beings eat insufficiently cooked fresh pork products, there is an endless sequence of infestation and reinfestation of hog and human.

   B. General measures:
      1. Inspection of slaughtered hogs for the detection of trichinosis (rarely found unless muscles are heavily infested).
      2. **Thorough cooking of all pork products at a temperature of 160° F. or over.**
      3. **Refrigeration of pork at 5° F. for 20 days.**
      4. Extermination of rats, expecially around meat shops and slaughter houses and hog pens.
      5. Cooking swill and offal which is to be fed to hogs.

Tuberculosis, Pulmonary

1. *Recognition of the disease.*—Evidence of present or past infection in the absence of clinical symptoms can be determined by a variety of specific tuberculin reactions, among which the Mantoux intradermal test is the most reliable. In the presence of early constitutional symptoms with or without pulmonary signs, the existence or location of pulmonary or other thoracic lesions can best be revealed by the X-ray. When fever, cough, loss of appetite and weight, and physical signs on auscultation and percussion are found, the pulmonary lesion is already well developed. Discovery of tubercle bacilli in the sputum confirms the diagnosis not infrequently in early cases but is an evidence usually of a well-advanced lesion. [9]
2. *Etiological agent.*—Tubercle bacillus (human), *Mycobacterium tuberculosis* (*hominis*). Tubercle bacilli of bovine type have been isolated from pulmonary lesions in man; avian type rarely.
3. *Source of infection.*—The specific micro-organism present in the discharges, or articles freshly soiled from the discharges, from any open tuberculosis lesions, the most important discharge being sputum. Of less importance are discharges from the intestinal and genitourinary tracts, or from lesions of the lymph nodes, bone, and skin.
4. *Mode of transmission.*—Usually through the discharges of the respiratory tract, occasionally through those of the digestive tract, by direct or indirect contact with infected persons, by means of coughing, sneezing, or other droplet infection, by kissing, by the use of contaminated eating and drinking utensils, and possibly by contaminated flies and dust. Infection rarely occurs from casual contact, but usually results from the continued type of exposure characteristic of family relationships.
5. *Incubation period.*—Variable and dependent upon the type of the disease.
6. *Period of communicability.*—As long as the specific micro-organism is eliminated by the host. Commences when a lesion becomes an open one, i. e., discharging tubercle bacilli, and continues until it heals or death occurs. The degree of communicability varies with the number and virulence of the bacilli discharged, the frequency of exposure, and the susceptibility of the persons exposed.
7. *Susceptibility and immunity.*—Susceptibility is general; in children greater than in adults; in aboriginal races more than among races long exposed to the disease; in the undernourished, fatigued, and neglected more than in the well fed and well cared for; in those exposed to dusty trades, and in particular to silica dust, more than in persons with outdoor occupations in clean air. Resistance of some degree is developed by age and by the maintenance of good nutrition.
8. *Prevalence.*—Among the most common communicable diseases of man, with but slight variations of occurrence of infection, although considerable variation in mortality rate according to race. At present in some modern occidental nations its incidence as a disease has fallen markedly, and both incidence and deaths continue to fall from year to year. Infection occurs more commonly in childhood (from infancy to adolescence) than at later ages. Mortality highest among males between 25 and 40 and among females about 5 years earlier. Aboriginal races when first exposed develop the disease in a rapidly fatal form.

[9] Tuberculosis in children: A distinction should be made between the childhood type and the adult type of tuberculosis because of medical and epidemiological differences. "The childhood type of tuberculosis is the name adopted to describe the diffuse or circumscribed lesions in the lungs and associated tracheobronchial lymph glands that result from a first infection of the pulmonary tissue with the tubercle bacillus" (Diagnostic Standards, National Tuberculosis Association). The chief difference between the childhood type and the adult type is that the former represents the reactions caused by the tubercle bacillus in unsensitized tissue while the latter is a reinfection of sensitized tissue. The childhood type is usually benign, but is of significance because it is often the precursor of the adult type of pulmonary tuberculosis.

From the medical standpoint, the childhood type of tuberculosis is of the greatest significance during the first 3 years of life, and from the ages of 12 to 18 years. In school children it can be detected by routine application of the tuberculin test and X-rays of the positive reactors. School children with this type of tuberculosis do not usually need hospitalization if in good physical condition, living in a satisfactory home, and no longer exposed to a source of infection. They should have an annual roentgenogram of the chest for the remainder of their school life to detect further signs of advancing tuberculosis. If such routine examination of school children includes examination of family contacts of all cases of childhood type of tuberculosis it becomes an effective method for the discovery of the cases of pulmonary tuberculosis in adults who are unrecognized sources of infection.

9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: By thorough physical examination supplemented by use of the X-ray and tuberculin testing when necessary and confirmed by bacteriological examination of sputum and other materials. Early discovery in contacts, particularly in family groups exposed to an open case of tuberculosis ("positive" sputum), is of great importance.
      2. Isolation of such "open" cases as do not observe the precautions necessary to prevent the spread of the disease may prove advisable. A period of hospital or sanatorium treatment is very desirable in all cases to remove the patient as a focus of infection in his home, and to teach him the hygienic essentials of tuberculosis control as well as to increase his chances of recovery.[10]
      3. Concurrent disinfection: Of sputum and articles soiled with it. Particular attention should be paid to prompt disposal or disinfection of sputum itself, of handkerchiefs, cloths, or paper soiled therewith, and of eating utensils used by the patient.
      4. Terminal disinfection: Cleaning and renovation.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: In spite of the length and uncertainty of the incubation period and the numerous possible sources of infection, a systematic effort should be made to discover the probable source in each case and to identify other cases of the same origin, by thorough examination by X-ray, physical examination, and where appropriate by tuberculin test of family and household contacts.
   B. General measures:
      1. Education of the public in regard to the danger of tuberculosis, the mode of spread and the methods of control, with especial stress upon the danger of exposure and infection in early childhood.
      2. Provision of dispensaries and visiting-nurse service for discovery of early cases and supervision of home cases.
      3. **Provision of adequate sanatorium facilities for isolation and treatment of active cases. Two beds per annual tuberculosis death in the community is an adequate ratio.**
      4. Provision of open-air schools and preventoria for infected children not yet showing clinical signs of the disease.
      5. Improvement of housing conditions and nutrition of the poor.
      6. Elimination of silica dust in certain industrial establishments.
      7. Improvement of habits of personal hygiene and betterment of living conditions among the underprivileged.
      8. Separation of babies from tuberculous mothers at birth.
      9. Pasteurization of all milk supplies.
      10. Eradication of tuberculosis in cattle.
      11. Where the disease is endemic and the incidence high particularly among little children, the routine use of B. C. G. vaccine in infancy for active immunization has been suggested.

Tuberculosis, Other than Pulmonary

1. *Recognition of the disease.*—By local manifestations, by constitutional reactions, by specific reactions, and by microscopic identification of the tubercle bacillus in the lesions or their discharges.
2. *Etiological agent.*—Tubercle bacillus (human and bovine), *Mycobacterium tuberculosis* (*hominis et bovis*).
3. *Source of infection.*—Discharges from mouth, nose, bowels, and genito-urinary tract of infected human beings; the discharging lesion of bones, joints, and lymph glands; articles freshly soiled with such discharges; milk from tuberculous cattle.
4. *Mode of transmission.*—By direct contact with infected persons, by contaminated food, and possibly by contact with articles freshly soiled with the discharges of infected persons.

[10] "Collapse therapy" is often of value in appropriate cases of the disease in shortening the period of communicability, as well as in reducing the case fatality.

5. *Incubation period.*—Unknown.
6. *Period of communicability.*—Until discharging lesions are healed.
7. *Susceptibility and immunity.*—(See statement under this heading in Pulmonary tuberculosis.)
8. *Prevalence.*—Much less common than the pulmonary form and more rapidly falling in incidence, representing about 10 percent of total cases and deaths from the disease. Especially common in infants and young children where intimately exposed to parent infection and to bovine infection through unpasteurized milk from tuberculous cattle.
9. *Methods of control:*
   A. The infected individual, contacts and environment.
      1. Recognition of the disease and reporting: Clinical signs and symptoms confirmed by bacteriological and serological examinations.
      2 Isolation: None.
      3. Concurrent disinfection: Discharges and articles freshly soiled with them.
      4. Terminal disinfection: Cleaning.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Search should be made for possible original source in family, household, or other intimate contacts, and to discover previously unrecognized cases of similar origin, such a search to be aimed at discovery of infected but latent or arrested cases as well as those showing an active process. Special inquiry and investigation should be made to discover possible source of bovine tubercle infection where unpasteurized milk has been used in the family or particularly used uncooked, by the patient.
   B. General measures:
      1. **Pasteurization of milk and milk products and inspection of meats.**
      2. **Eradication of tuberculosis in dairy cattle.**
      3. Patients with open lesions should be prohibited from handling foods.
      4. **Adequate hospital, sanatorium, preventorium, and outpatient facilities for discovery, control, and clinical management.**

Tularaemia

1. *Recognition of the disease.*—Whether the disease is acquired by the bite of the blood-sucking horse fly or the wood tick or from an infected abrasion or skin trauma or infected conjunctiva, or by ingestion of insufficiently cooked meat of infected rabbits, the onset is sudden, with pains and fever, and the patient is usually prostrated and confined to bed. If the disease follows a bite or a conjunctival infection or an infection through the skin, the lymph glands draining the area become swollen and tender and suppurate in about half the cases. The fever is of 3 to 4 weeks' duration, and the convalescence slow. The clinical diagnosis may be confirmed by animal inoculation, isolation of cultures, and agglutination reactions.
2. *Etiological agent.*—*Bacterium tularense* (*Pasteurella tularensis*).
3. *Source of infection.*—Wild rabbits and hares, horse fly (*Chrysops discalis*), wood tick (*Dermacentor andersoni* and *Dermacentor variabilis*), woodchuck, coyote, muskrat, opossum, tree squirrel, quail, skunk, water rat of Europe (*Arvicola amphibus*), cat, deer, dog, fox, hog, sage hen, and bull snake.
4. *Mode of transmission.*—By bites of infected flies and ticks and by inoculation through handling infected animals, as in skinning, dressing, or performing necropsies on infected animals, or by fluids from infected flies, ticks, rabbits, and woodchucks. Ingestion of insufficiently cooked rabbit meat. Rare cases occur from bites of coyotes, skunks, hogs, cats, and dogs, where the mouth of the animal was presumably contaminated from eating infected rabbits.
5. *Period of incubation.*—From 24 hours to 10 days, average slightly more than 3 days.
6. *Period of communicability.*—There is no authentic record of transfer of the disease from man to man. The infection has been found in the blood of man during the first 2 weeks of the disease; in conjunctival scrapings up to 17 days; in the primary lesion on the finger up to 21 days; in the sputum on the twelfth day; in lymph glands up to 5 months; in ascitic fluid (taken

during life) 3 months after onset; in pleural fluid 4 months after onset; in spinal fluid 16 days after onset; in the spleen taken at autopsy up to 30 days. Flies are infective for 14 days; ticks throughout their lifetime. Refrigerated rabbits kept constantly frozen at −15° C. may remain infective for 3 years.

7. *Susceptibility and immunity.*—All ages are susceptible. Permanent immunity follows recovery from an attack. An immune person may acquire through an abrasion on his hand and by contact with virulent material, a local tularaemic papule which harbors virulent organisms but does not cause notable constitutional reaction.
8. *Prevalence.*—The disease has been found in every State of the United States except Vermont and Connecticut, also in Canada, Japan, Russia, Norway, and Sweden. It occurs every month of the year, but especially during the hunting season. The case fatality is about 5 percent.
9. *Methods of control:*

   A. The infected individual, contacts and environment:

      1. Recognition of the disease and reporting: Human cases should be reported to the health department.
      2. Isolation: None.
      3. Concurrent disinfection: Disinfection of discharges from the ulcer, lymph glands, or conjunctival sac.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection should be undertaken in each case.

   B. General measures:

      1. Avoidance of the bites of, or handling of, flies and ticks when working in the infected zones during the seasonal incidence of blood-sucking flies and ticks.
      2. The use of rubber gloves by persons engaged in dressing wild rabbits wherever taken, or when performing necropsies on infected laboratory animals. Employment of immune persons for dressing wild rabbits or conducting laboratory experiments. Thorough cooking of meat of wild rabbits.

Typhoid Fever

1. *Recognition of the disease.*—A general infection with the typhoid bacillus, characterized by a continued fever, and by involvement of the lymphoid tissues especially with enlargement and often ulceration of Peyer's patches, enlargement of the spleen, usually rose spots on the trunk, diarrheal disturbance, and a variety of severe constitutional disturbances accompanying parenchymatous involvement of various viscera. The infecting microorganism can be found in the blood, the feces, and the urine.
2. *Etiological agent.*—Typhoid bacillus, *Eberthella typhi.*
3. *Source of infection.*—Bowel discharges and urine of infected individuals. Healthy carriers are common.
4. *Mode of transmission.*—Conveyance of the specific micro-organism by direct or indirect contact with a source of infection. Among indirect means of transmission are contaminated water, milk, and shellfish, and probably flies.
5. *Incubation period.*—From 3 to 38 days, usually 7 to 14 days.
6. *Period of communicability.*—From the appearance of prodromal symptoms, throughout the illness and relapses during convalescence, and until repeated bacteriological examinations of the discharges show continuous absence of the infecting organism.
7. *Susceptibility and immunity.*—Susceptibility is general. Natural immunity exists to some extent in adults. Acquired immunity of permanent duration usually follows recovery from the disease. Artificial active immunity of probably 2 years' duration can be developed by the use of typhoid vaccine.
8. *Prevalence.*—Widespread throughout the world regardless of race, age, sex, climate, or geography. Formerly in most large cities of North America and in many extensive rural areas in endemic and epidemic form, and still endemic in some rural areas of the southern United States but commonly now occurring in sporadic cases and as small contact and carrier epidemics. Steadily falling in incidence, particularly in all urban areas supplied

with water of a sanitary quality and pasteurized milk, and where human fecal waste is disposed of without polluting water supplies, food, or surface of the soil.

9. *Methods of control:*

A. The infected invididual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms confirmed by specific agglutination test and bacteriological examination of blood, bowel discharges, or urine.
2. Isolation: In fly-proof room, preferably under hospital conditions, of such cases as cannot command adequate sanitary environment and nursing care in their homes. Release from isolation should be determined by two successive negative cultures of stool and urine specimens collected not less than 24 hours apart.
3. **Concurrent disinfection: Disinfection of all bowel and urinary discharges and articles soiled with them.**
4. Terminal disinfection: Cleaning.
5. Quarantine: None.
6. Immunization: Of susceptibles in the family or household of the patient who have been exposed or may be exposed during the course of the disease.
7. Investigation of source of infection: The actual or probable source of infection of every case should be determined by searching for common and individual sources (1) polluted water, milk, shellfish, and other food supplies, (2) unreported cases and carriers.

B. General measures:

1. **Protection and purification of public water supplies.**
2. **Pasteurization of public milk supplies.**
3. Limitation of collection and marketing of shellfish to those from approved sources.
4. **Sanitary disposal of human excreta.**
5. Supervision of other food supplies, and of food handlers.
6. Prevention of fly breeding.
7. Extension of immunization by vaccination to persons subject to unusual exposure by reason of occupation or travel, to those living in areas of high endemic incidence of typhoid fever and to those for whom the procedure can be systematically and economically applied, as in the military forces and institutional populations.
8. Discovery and supervision of such typhoid carriers, and their exclusion from the handling of foods, as epidemiological and bacteriological evidence indicate are of importance.
9. Exclusion of suspected milk supplies on epidemiological evidence pending discovery and elimination of the cause of contamination of the milk.
10. Exclusion of suspected water supply, until adequate protection or purification is provided unless all water used for toilet, cooking, and drinking purposes is boiled before use.
11. Education of the general public and particularly of food handlers, concerning the sources of infection, and modes of transmission of the disease.
12. Instruction of convalescents and chronic carriers in personal hygiene, particularly as to sanitary disposal of fecal waste, and handwashing after use of toilet, and restraint from acting as food handlers.

Typhus Fever

1. *Recognition of the disease.*—Whether in the classical and severe epidemic form of the louse-transmitted disease or in the mild flea-borne and sporadic type, the onset is variable, often being sudden and marked by headache, chills, fever, and general pains, and a macular eruption on the fifth or sixth day, toxemia, and a quite definite course terminating in rapid lysis after 12 to 21 days. A positive Weil-Felix reaction is valuable as confirmation of the diagnosis.
2. *Etiological agent.*—*Rickettsia prowazeki* is believed to be the causative agent.
3. *Source of infection.*—The only known source is the blood of infected persons or infected rats.

4. *Mode of transmission.*—The infectious agent is transmitted from man to man by lice (*Pediculus corporis*) and from rat to rat or man by fleas (*Xenopsylla cheopis*).
5. *Incubation period.*—From 5 to 20 days, most often 12 days.
6. *Period of communicability.*—In the presence of lice, highly communicable until 36 hours have elapsed after the temperature reaches normal.
7. *Susceptibility and immunity.*—Susceptibility is general. One attack confers immunity, which is not always permanent.
8. *Prevalence.*—Widespread. Flea-borne typhus predominantly in late summer and fall; louse-born predominantly in winter and spring. The case fatality of flea-borne typhus is 2 percent, and of louse-borne typhus 20 to 40 percent.
9. *Methods of control:*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting: Cases should be promptly reported to the health authorities.
      2. Isolation: In a vermin-free room.
      3. Concurrent disinfection: Destroy all lice and louse eggs on the clothing or in the hair of the patient.
      4. Terminal disinfection: None.
      5. Quarantine: In the presence of lice, exposed susceptibles should be quarantined for 14 days after last exposure.
      6. Immunization: Methods not yet available for general application.
      7. Investigation of source of infection: Particular attention should be paid to patient's contact with rats, and with louse-infected persons or clothing.

   B. General measures: The elimination of rats.
   C. Epidemic measures: Delousing of persons, clothing, and premises.

Undulant Fever (Brucellosis)

1. *Recognition of the disease.*—A general infection with gradual or insidious onset and characterized by irregular fever of uncertain but often prolonged duration, profuse sweating, chills (or chilliness), pain in joints and muscles. Agglutination test and identification of the infecting micro-organism in the blood, tissues, or discharges of the patient are valuable aids in diagnosis.
2. *Etiological agent.*—*Brucella melitensis (Alkaligenes melitensis, Micrococcus melitensis); Brucella abortus (Alkaligenes abortus); Brucella suis.*
3. *Source of infection.*—The tissues, blood, milk, and urine of infected animals, especially goats, cattle, and swine.
4. *Mode of transmission.*—By ingestion of milk from infected animals and by direct contact with infected animals or animal products.
5. *Incubation period.*—Six to 30 days or more.
6. *Period of communicability.*—Practically not communicable from person to person. From the onset of the disease until the micro-organism is no longer found in the urine, usually 90 days, with a range of 20 to 300 days.
7. *Susceptibility and immunity.*—Susceptibility is not general, as most persons have some degree of natural immunity, especially to the abortus varieties of the infecting agent, or they have acquired such partial immunity by ingestion of small doses of these. Immunity uncertain.
8. *Prevalence.*—Occurs more often in males than in females, and particularly in persons whose occupation brings them into relation with milk cows or goats, and in persons using unpasteurized milk of cows or goats. Found in every one of the United States and in Canada and affecting persons of any race. Occurs most often in the months of May to October. Many cases of a mild type doubtless occur without record.
9. *Methods of control:*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting: The clinical picture and particularly the undulant character of the fever, supplemented by exact determination through the use of agglutination tests and bacteriological examination of the blood and urine for the infecting micro-organism.
      2. Isolation: None.

3. Concurrent disinfection: Unnecessary in presence of ordinary sanitary precautions.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Investigation of source of infection: Human cases should be traced to the common or individual source of infection, almost universally infected domestic goats, or cows, or the unpasteurized milk products from these.

B. General measures:
1. **Pasteurization of milk whether from cows or goats.**
2. **Search for infection among livestock by agglutination reaction and elimination of infected animals from the herd by segregation or slaughter.**
3. Education of the public and particularly workers in slaughter houses, packing houses, and butcher shops, as to the nature of the disease, the mode of transmission, and the danger of handling carcasses or products of infected animals.

Whooping Cough (Pertussis)

1. *Recognition of the disease.*—An acute infection involving trachea and bronchi and characterized by an initial catarrhal stage with slight fever, and a paroxysmal stage in which the paroxysmal cough ends in a sonorous or whooping inspiration often accompanied by vomiting. Identification of the Bordet-Gengou bacillus in the tenacious tracheo-bronchial mucus can be made in a high percentage of cases during the early and paroxysmal stages of the disease before the whoop develops, and less readily from the fourth to the sixth week after the onset of the disease by the use of special cough culture plates held before the mouth during a spontaneous or induced paroxysm of coughing. A definite lymphocytosis in the pre-paroxysmal stage may assist the clinical diagnosis.
2. *Etiological agent.*—Pertussis bacillus of Bordet and Gengou, *Hemophilus pertussis.*
3. *Source of infection.*—Discharges from the laryngeal and bronchial mucous membranes of infected persons.
4. *Mode of transmission.*—Contact with an infected person, or with articles freshly soiled with the discharges of such person.
5. *Incubation period.*—Commonly 7 days, almost uniformly within 10 days, and not exceeding 16 days.
6. *Period of communicability.*—Particularly communicable in the early catarrhal stage before the characteristic whoop makes a clinical diagnosis possible. The catarrhal stage occupies from 7 to 14 days. After the characteristic whoop has appeared, the communicable period continues certainly for 3 weeks. Even if the spasmodic cough with whoop persists longer than this it is most unlikely that the infecting organism can be isolated from the discharges. The communicable stage must be considered to extend from 7 days after exposure to an infected individual to 3 weeks after the development of the characteristic whoop.
7. *Susceptibility and immunity.*—Susceptibility is general. There is no natural immunity. The greatest susceptibility is in children between 6 months and 5 years of age, after which there is some decrease. One attack confers a definite and prolonged immunity, although second attacks do occur. A brief passive immunity may be conveyed to young children by convalescent serum or adult whole blood. Artificial immunity is still of doubtful value and as yet of no definite reliance. Susceptibility is apparently higher in females at all ages than in males.
8. *Prevalence.*—Very prevalent, and a common disease among children everywhere regardless of race, climate, or geographical location. About half the reported cases in cities are in children under 5 years of age, and 90 percent in children under 10. Incidence and fatality rates are higher among females. Somewhat less prevalent in tropical than in temperate climates. Seasonal incidence variable, but mortality higher usually in spring months in North America. Cyclical occurrence irregular.
9. *Methods of control:*

A. The infected individual, contacts and environment:
1. Recognition of the disease and reporting: Clinical symptoms, supported by a differential leucocyte count, and confirmed where possible by bacteriological examination of bronchial secretions.

A positive diagnosis may be made by bacteriological examination of laryngeal discharges as early as 1 week before the development of the characteristic cough.

2. Isolation: Separation of the patient from susceptible children, and exclusion of the patient from school and public places for the period of assumed infectivity. It is of particular importance to protect children under 3 years of age against contact with any other children with cough and fever, of whatever origin, and especially if whooping cough is suspected or is known to be prevalent. Isolation of children over 2 years of age is impracticable, and even in those under 2 should not be insisted upon at the expense of fresh air in the open if weather permits.
3. Concurrent disinfection: Discharges from the nose and throat of the patient and articles soiled with such discharges.
4. Terminal disinfection: Cleaning of the premises used by the patient.
5. Quarantine: Limited to the exclusion of nonimmune children from school and public gatherings for 10 days after their last exposure to a recognized case. This precaution may be omitted if exposed nonimmune children are observed with care by a physician or nurse on their arrival at school each day for 10 days after their last exposure to a recognized case.
6. Immunization: Use of prophylactic vaccination is recommended by some observers, but is still considered to be of doubtful reliability.
7. Investigation of source of infection: An effort should be made to discover undiagnosed and unreported cases, with the main object in view of protecting young children from exposure, and thus reducing the mortality. Postponement of the age of infection at least until school age and great care in the management of the disease in young children offer some hope of reducing deaths from whooping cough although reduction of incidence by any means appears unlikely. Carriers in the exact sense of this term are not known to occur.

B. General measures: Education in habits of personal cleanliness and in the dangers of association or contact with those showing catarrhal symptoms with cough.

Yellow Fever

1. *Recognition of the disease.*—Clinical diagnosis usually rests upon sudden onset, fever, prostration, slow pulse in relation to body temperature, severe headache and backache, congestion of mucous membranes, black vomit, bleeding gums, and late jaundice, with brief duration of illness. Pronounced albuminuria and leukopenia are characteristic. A history of possible bites of infected mosquitoes is corroborative but absence of such or even failure to find *Aedes aegypti* mosquitoes in the vicinity does not necessarily exclude the diagnosis. Almost symptomless and certainly unrecognizable cases of this infection occur among Negro races in Africa.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—The blood of infected persons.
4. *Mode of transmission.*—By the bite of infected *Aedes aegypti* mosquitoes, and of a few allied species. (It is not yet certain that some other suctorial insect may not be capable of acting as the transmitter.)
5. *Incubation period.*—Three to six days, rarely longer.
6. *Period of communicability.*—First 3 days of the fever, possibly 4. High degree of communicability where infected mosquitoes abound and there are many susceptible persons.
7. *Susceptibility and immunity.*—Recovery from an attack of the disease is regularly followed by immunity, apparently for life. There is no natural immunity. Artificial immunity may be developed by the use of convalescent serum. The duration of this is brief. Artificial active immunity may be developed by the use of modified living virus and human immune serum. The duration of this is uncertain but it apparently lasts for several years.
8. *Prevalence.*—Very rare in North America and insular possessions. Not known in the Pacific Basin. No case in North America or Puerto Rico for many years.

4. Terminal disinfection: Not important.
5. Quarantine: None; neither contacts nor carriers are known to be spreaders of the disease.
6. Investigation of source of infection: Not indicated and unprofitable except as a research effort.

B. General measures: None, other than education of persons generally in California that agricultural workers and laborers should have prompt treatment of skin wounds. Laboratory workers should exercise particular care in handling cultures of the infecting micro-organism and dried material which may contain its spores.

Common Cold

1. *Recognition of the disease.*—An acute catarrhal affection of the upper respiratory tract, usually accompanied by a slight rise of temperature on the first day and chilly sensations with coryza, and general indisposition or lassitude lasting 2 to 7 days.
2. *Etiological agent.*—A filterable virus.
3. *Source of infection.*—Discharges from nose and mouth of infected persons.
4. *Mode of transmission.*—Usually directly by coughing, sneezing, and explosive manner of speech by which droplets are cast out into the air from the infected person to be inhaled by, or impinged on the face of, susceptible persons within short range of 3 feet or so; also by hand to face transfer of discharges, and indirectly by handkerchiefs, eating utensils, or other articles freshly soiled by discharges of the infected person.
5. *Incubation period.*—Probably between 12 and 48 hours; possibly as long as 72 hours.
6. *Period of communicability.*—While the virus remains in the discharges, an undetermined period, but believed to be limited to the early stages of the disease and probable no longer than a week from the onset.
7. *Susceptibility and immunity.*—Susceptibility universal. A period of at least relative immunity follows an attack of the disease and appears to be effective for a month or so.
8. *Prevalence.*—Most persons, except those living in small isolated communities, have one or more colds each year. The incidence does not vary materially according to age, sex, race, or occupation, but incidence appears to be highest in children under 5 years of age.
9. *Methods of control:*

A. The infected individual, contacts, and environment:
1. On recognition of the premonitory or early stage of a "cold" the infected person should avoid direct and indirect exposure of others, particularly little children, feeble or aged persons, or persons suffering from any other illness.
2. Isolation: Such modified isolation as can be accomplished by rest in bed for 1 or 2 days is to be advised.
3. Concurrent disinfection: The disposal of nasal and mouth discharges by the use of soft paper, by burning or putting in the toilet, or otherwise, to avoid contamination of hands and articles of common use, is to be urged.
4. Terminal disinfection: None, except airing and sunning room and bedding.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Unprofitable except as a research project.

B. General measures:
1. Education in the refinements of personal hygiene and disposal of nose and mouth secretions.
2. Maintenance of good bodily resistance by regular use of fresh air by day and by night, outdoor exercise, sufficient rest to avoid conscious fatigue, a balanced diet, regular bowel evacuation, and clothing appropriate to climate and use.

Filariasis

1. *Recognition of the disease.*—Inflammatory phenomena, recurrent adenitis, lymphangitis and fever, obstructive manifestations, elephantiasis, varicose lymph glands, superficial lymph varices, hydrocele, lymph scrotum, chyluria, fistula. Discovery of embryos in night blood (microfiliariae).

2. *Etiological agent.*—Animal parasite of class Nematoda. Five species are known to infect man; filariasis is usually understood to indicate infection with *Wuchereria bancrofti.* This is the only species reported in the United States.
3. *Source of infection.*—The embryos circulating in the human blood of infected persons.
4. *Mode of transmission.*—By various mosquitoes of which *Culex quinquefasciatus* (United States and West Indies) and *Aëdes varicgatus* (Western Pacific Islands) are most notorious. Embryo filaria develops to a larva in mosquito. When the mosquito bites, the parasites are deposited on the skin, which they penetrate.
5. *Incubation period.*—A few months to many years.
6. *Period of communicability.*—Fourteen to twenty-one days after larvae have developed in the mosquito and are present in its head and proboscis.
7. *Susceptibility and immunity.*—Everyone frequently exposed to bites of infective mosquitoes. No immunity for persons so exposed. There is no acquired immunity.
8. *Prevalence.*—In the United States limited to Charleston, S. C., to which city the few cases found in the United States have been traced; common in Puerto Rico, Virgin Islands, Samoa, and Philippines, as well as tropical and subtropical parts of Africa, Asia, Oceania, and South America.
9. *Methods of control;*
   A. The infected individual, contacts and environment:
      1. Recognition of the disease and reporting.
      2. Isolation: Not practicable.
      3. Quarantine: Not practicable.
      4. Immunization: None.
      5. Investigation of source of infection most important. Surveys of incidence and range in endemic foci.
      6. Antimosquito measures against *Culex* mosquitoes, screening of houses, better ventilation and lighting, prevention of overcrowding, protection of local water supplies from mosquitoes.
   B. General measures: Education of public and sanitarians concerning spread and dangers of infection

Icterohemorrhagic Jaundice (Weil's Disease)

1. *Recognition of the disease.*—An acute infection characterized by malaise, prostration, and gastro-intestinal symptoms at the onset, followed by fever of varying degree and by jaundice of varying intensity and duration. Severe cases may exhibit bleeding from mucous surfaces and albuminuria. Identification of the *Spirochaeta icterohemorrhagiae* in the urine confirms the diagnosis.
2. *Etiological agent.*—*Spirochaeta icterohemorrhagiae* found in the urine of human cases and in rats.
3. *Source of infection.*—The urine of rats, and articles, particularly food stuffs, contaminated by rats.
4. *Mode of transmission.*—By ingestion of foods which have been contaminated by rat urine or other rat discharges and by contact with moist soil polluted by rat discharges where temperatures are moderate. Infection is not transmitted from man to man.
5. *Incubation period.*—Undetermined, but dependent apparently upon the amount of exposure and the extent of food and soil contamination by rats.
6. *Period of communicability.*—As long as the urine of an infected person contains the infecting micro-organism which may continue for many weeks or several months. The wild rat to the extent of 10 to 40 percent harbors the organism in the kidney and is a persistent carrier.
7. *Susceptibility and immunity.*—Susceptibility is general. Immunity, natural or artificial, is not known to exist.
8. *Prevalence.*—Among rats, widespread and varying from 10 to 40 percent carrier incidence. In man, only where insanitary living conditions and rat infestation occur.
9. *Methods of control;*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms and identification of the spirochaete in the urine.

2. Isolation: None.
3. Concurrent disinfection: Urine and other discharges of patient.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Search for rats harboring the spirochaete and for food stuffs giving evidence of rat contamination.

B. General measures:

1. Suppression of rats by exclusion from food stores and supplies; by rat-proofing; and by poisoning, trapping, etc.
2. Sanitary disposal of human wastes in civil and military environment.
3. Cooking of food if rat contamination has not or cannot be excluded.
4. Wearing shoes in regions where rat contamination of moist warm soil is common.
5. Education in the value of cleanliness in disposal of human wastes and the storing and keeping of foods, and in the matter of washing hands before meals.

Impetigo Contagiosa

1. *Recognition of the disease.*—A pustular dermatitis occurring sporadically and in small epidemics and characterized by vesicular lesions turning to pustules and healing under crusts, commonly on the face and often on the hands, sometimes widely scattered over the body. Bacteriological determination of the infecting micro-organism is of no importance.
2. *Etiological agent.*—A variety of cocci, including commonly streptococci and staphylococci.
3. *Source of infection.*—Lesions on the skin of an infected person.
4. *Mode of transmission.*—By direct contact with the face and hands of an infected person and indirectly by contact with articles recently soiled by the moist discharges of the skin lesions. The infection is easily inoculable from place to place on the patient's body by scratching.
5. *Incubation period.*—Undetermined, but usually within 5 days and often within 2.
6. *Period of communicability.*—While lesions containing pus remain unhealed.
7. *Susceptibility and immunity.*—Susceptibility general, especially among children, and favored by neglected nutrition and bodily uncleanliness. Immunity does not follow an attack of the disease. There is no artificial immunity.
8. *Prevalence.*—Common among children living in crowded quarters where personal cleanliness is neglected, especially in warm weather. Sporadic and in epidemic outbreaks in children's institutions and summer camps.
9. *Methods of control.*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Of importance only to prevent spread in schools and other groups of children, on appearance of the characteristic clinical picture.
2. Isolation: Exclusion from school and contact with other children or feeble old, or sick persons until pustules are healed.
3. Concurrent disinfection: Cleanly disposal of dressings and moist discharges from the patient.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Only as a matter of curiosity.

B. General measures:

1. Personal cleanliness, particularly the avoidance of common use of toilet articles among children.
2. Prompt treatment of the first case in a group of children will abbreviate the period of communicability and prevent extension of lesions to new sites.

Lymphogranuloma Venereum (Inguinale) and Climatic Bubo

1. *Recognition of the disease.*—Adenopathy, inguinal in male, pelvic in female, and history of exposure to venereal infection in tropics (climatic bubo) or in temperate climates. Natural infection limited to human beings, but experimentally transmissible to monkeys and mice, less readily to other species. Characterized by small herpetiform lesion of inoculation on external genitalia or uterine os (rarely in mouth), often transitory, followed by subacute or chronic adenitis and periadenitis, usually with multiple foci of suppuration; associated with constitutional symptoms, fever, prostration, loss of weight, rheumatic affections, and skin reactions. Clinical diagnosis may be confirmed by Frei antigen intradermal test.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Discharges from lesions.
4. *Mode of transmission.*—Direct contact by skin and mucous membranes, almost exclusively in sexual relations with infected persons, or indirectly by articles soiled with discharges from the lesions of such persons.
5. *Incubation period.*—One to four weeks. Glandular enlargement follows the initial lesion in 1 or 2 weeks.
6. *Period of communicability.*—As long as there are open lesions upon skin or mucous membranes.
7. *Susceptibility and immunity.*—Susceptibility appears to be general. Immunity apparently does not follow an attack of the disease. There is no artificial immunity.
8. *Prevalence.*—Has been known for many years as an occasional venereal infection in the Negro quarters of cities in the United States and more commonly in tropical possessions. Is still a rare disease in northern cities and among whites. Widely prevalent in the tropics and common among inmates and clients of brothels in tropical seaports.
2. *Methods of control:*
   - A. The infected individual, contacts, and environment:
     1. Recognition of the disease and reporting: Clinical symptoms.
     2. Isolation: Exclusion of infected person from sexual contacts and from preparation and serving of food during period of communicability.
     3. Concurrent disinfection: Discharges and articles soiled therewith.
     4. Terminal disinfection: None.
     5. Quarantine: None.
     6. Immunization: None.
     7. Investigation of source of infection: Search should be made for case of origin, particularly among prostitutes, and among persons of Negro race, and of former residence in tropical and subtropical areas.
   - B. General measures:
     1. Education in matters of sexual hygiene, particularly as to the fact that continence in both sexes and at all ages is compatible with health and normal development.
     2. Repression of commercial prostitution and associated use of alcoholic beverages by use of police and other competent authority and control of living premises.
     3. Elimination of the use of common towels, cups, toilet articles, and eating utensils.
     4. Exclusion of persons in the communicable state of the disease from participation in the preparing and serving of food.
     5. Personal prophylaxis should be advised and made available for use immediately after sexual intercourse to those who expose themselves to opportunity to infection.

Pediculosis (Lousiness)

1. *Recognition of the condition.*—The discovery of the adult louse on some one or more of the hairy parts of the body or in the clothing, or the nits attached to hairs or to threads of body clothing. Irritation of the skin and adjacent adenitis may result from the scratching which the lousiness incites.
2. *Infesting agent.*—Head louse (*Pediculus capitis*), body louse (*P. vestimenti*), and crab louse (*P. pubis*).

3. *Source of infestation.*—Usually the hairy parts of an infested person or, in the case of *Pediculus vestimenti*, the clothing of such a person.
4. *Mode of transmission.*—Direct contact with an infested person and indirectly by contact with clothing and headgear of such persons.
5. *Incubation period.*—Lice hatch in a week and reach sexual maturity in 2 weeks.
6. *Period of communicability.*—While live lice remain on the infested person or in his clothing, and until eggs (nits) in hair and clothing have been destroyed.
7. *Susceptibility and immunity.*—Neither term appropriate to such a condition as lousiness. All human beings become lousy under suitable conditions of exposure and lack of personal cleanliness.
8. *Prevalence.*—Universal where there is neglect of washing of the person and the body clothing.
9. *Methods of control:*
   A. The infested individual, contacts, and environment:
      1. Recognition of the state of lousiness by direct inspection of school children for lice and nits and report to school authorities.
      2. Isolation: Exclusion of the infested child from school until live lice are destroyed, and supervision until nits are removed from the hair of the head.
      3. Concurrent disinfection: Such washing of person and treatment of body clothing and toilet articles as will destroy lice and nits.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Investigation of source of infestation: Search for unreported and undetected cases of lousiness among companions, and especially among members of family and household.
   B. General measures:
      1. **Direct inspection of the heads and, when necessary, of the body and clothing where lousiness is found in groups of either children or adults, particularly of children in schools, institutions, and camp groups.**
      2. **Provision of facilities, medicinal and hygienic, for freeing the persons and clothing of infested individuals and groups of lice and nits.**
      3. Education in the value of bodily cleanliness by use of hot water and soap and of washing body clothing in a way to prevent the survival of lice.

Rat-Bite Fever (Sodoku)

1. *Recognition of the disease.*—Usually a history of rat bite within 2 weeks or more; primary edematous lesion; swelling of regional lymph-nodes; short febrile paroxysms alternating with afebrile intervals and accompanied by a rash of broad maculo-papules; presence of causative micro-organism in dark field preparations of blood of white mice, white rats, and guinea pigs inoculated from patient's blood, primary lesion, lymph-nodes, or skin macules, or (less frequently successful) in preparations direct from patient.
2. *Etiological agent*.—*Spirochaeta morsus-muris* (*Spirillum minus*).
3. *Source of infection.*—Usually bite of wild rat; rarely cat, weasel, ferret, dog, or bandicoot.
4. *Mode of transmission.*—During the bite, some of the animal's blood escapes from the injured or diseased buccal mucosa into the wound, or the conjunctival secretion of the rat may contaminate the wound. Blood from an animal in the laboratory may infect man.
5. *Incubation period.*—Four to twenty-five days.
6. *Communicability.*—Not transmitted from man to man.
7. *Susceptibility and immunity.*—No data for man; fatality may reach 10 percent in untreated cases.
8. *Prevalence.*—Distribution is world-wide. Surveys in Calcutta, Bombay, and Tokyo have shown 10 percent of wild rats infected. In the United States less than 100 human cases have been reported up to 1935.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting: Clinical symptoms are more uniformly definite than laboratory confirmation, but latter should always be attempted with thoroughness. Prompt cure by arsphenamines is of diagnostic value.

2. Isolation: None.
3. Concurrent disinfection: None.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Not practicable except as suggested under General measures.

B. General measures: Rat surveys and rat eradication. Avoidance of rat bites, especialy by not sleeping on or near earthen floors or rat-ridden communities and houses.

Relapsing Fever

1. *Recognition of the disease.*—Short febrile paroxysms lasting 2 or 3 days alternating with afebrile periods of 3 or 4 days; general macular eruption; presence of causative micro-organism in dark field preparations or stained films from patient's blood taken at height of a febrile paroxysm, or from blood of white mice, white rats, or monkeys inoculated with patient's blood at that time.
2. *Etiological agent.*—*Spirochaeta recurrentis* (*Borrelia recurrentis*) (formerly known as *Spirillum obermeieri*).
3. *Source of infection.*—The tick, *Ornithodorus turicata*, is the one proved source of human infection in the United States, but *O. talaje* is a vector in Panama, Central and South America, while *O. moubata* is the vector in tropical Africa. Lice (*Pediculus vestimenti* and *P. capitis*) are the common vectors in Asia and Europe.
4. *Mode of transmission.*— By tick bite and louse bite.
5. *Incubation period.*—Up to 12 days, the average being 7.
6. *Communicability.*—On the American Continent, only endemic foci are found, and spread from man to man is not apparent. Epidemics in Europe and Africa depend upon overcrowding and heavy infestation with lice and ticks.
7. *Susceptibility and immunity.*—Immunity is only partial. The case fatality for the European variety is about 4 percent. In India and Africa fatalities of 30 to 40 percent have been recorded, but no deaths have been reported for the United States.
8. *Prevalence.*—In the United States, 100 cases have been observed in Texas, 30 in California, and isolated cases in Colorado, Arizona, and New Mexico.
9. *Methods of control:*

   A. The infected individual, contacts, and environment:
   1. Recognition of the disease and reporting: Clinical symptoms with laboratory confirmation; curative action of arsphenamines also confirmatory.
   2. Isolation: None.
   3. Concurrent disinfection: None.
   4. Terminal disinfection: None.
   5. Quarantine: None.
   6. Immunization: None.
   7. Investigation of source of infection: Important.

   B. General measures:
   1. Tick and louse eradication.
   2. Avoidance of sleeping in the open or in camps in endemic areas, especially near "dry caves" in Texas.

Ringworm

(Of scalp, body, feet, and groin)

1. *Recognition of the disease.*—Inspection of the scalp and other parts of the body for the characteristics of the local lesion. Identification of the fungus in the scrapings from the edges of the skin areas involved.
2. *Etiological agent.*—Trichophyton, or epidermophyton.
3. *Source of infection.*—Lesions on bodies of infected persons or articles of clothing carrying the fungus or its spores.
4. *Mode of transmission.*—Direct skin-to-skin contact with lesions of infected persons and indirectly by articles of wearing apparel or by surfaces contaminated by scurf or scalings or hair from lesions.
5. *Incubation period.*—Undetermined.

6. *Period of communicability.*—As long as the fungus or its spores can be found at the site of the lesions. Transmission is easy in ordinary conduct of home or recreational pursuits, particularly those carried out indoors.
7. *Susceptibility and immunity.*—Susceptibility general. There is relative immunity to scalp ringworm after 15 years of age.
8. *Prevalence.*—Wide-spread, varying with aggregation of people under conditions appropriate for spread, as at swimming pools. Foot ringworm more common in adults, and the body, face, and head form more so among children, more especially in warm weather.
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of disease and reporting: All cases recognized on inspection of school children should be reported to school authorities.
      2. Isolation: Children and adults with marked cases of the disease should be excluded from privileges in gymnasium and at swimming pools. Exclusion from school may be desirable in cases of ringworm of the scalp. There are too many carriers of foot ringworm to make control of them at all practicable.
      3. Concurrent disinfection: Cleanliness of body and underclothing, especially socks.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Among school children medical inspection should be used to detect unreported cases. In gymnasia and buildings devoted to athletics, particularly swimming, search should be made as a routine, to exclude cases from common facilities.
   B. General measures:
      1. Cleanliness of body and underclothing.
      2. Prompt and persistent treatment of the lesions should be urged.
      3. Protection of feet against contamination in showers and dressing rooms and areas used by people with bare feet.
      4. The use of disinfecting solutions may prove useful in connection with common bathing and dressing rooms.

Scabies (The Itch)

1. *Recognition of the disease.*—Observation of the characteristic interdigital burrows of the itch mite, its identification under a hand lens, or of the eggs scraped from the burrows.
2. *Etiological agent.*—*Acarus scabiei*, the itch mite.
3. *Source of infestation.*—Persons harboring the itch mite on their skin in burrows, particularly between the fingers.
4. *Mode of transmission.*—Direct contact with infested persons and indirectly by use of underclothing, gloves, bedding, etc., of such persons.
5. *Incubation period.*—Merely the length of time for the itch mite to burrow under the skin and lay eggs and start the itching and scratching, all of which may occur within 24 to 48 hours of original infestation.
6. *Period of communicability.*—Until the itch mites and the eggs are destroyed.
7. *Susceptibility and immunity.*—These terms are not appropriate to this condition. Anyone may become infested and immediately reinfested.
8. *Prevalence.*—Wide-spread and occuring sporadically and in epidemics, especially where there is a low level of bodily cleanliness and neglect of personal and clothing hygiene.
9. *Methods of control:*
   A. The infested individual, contacts, and environment:
      1. Recognition of the disease and reporting: The condition should be reported to the school authorities if discovered in school children.
      2. Isolation: Children should be excluded from school until disinfested. Persons should be denied common recreation and bathing facilities while infested.
      3. Concurrent disinfestation: Care of body clothing and bedding until free from the infestation.
      4. Terminal disinfestation: Underclothing and bed covering to be so treated by dry heat or washing to destroy the mite and the eggs.
      5. Quarantine: None.

6. **Investigation** of source of infestation: Search for unreported or unrecognized cases in companions or house or family mates of the infested individual.

B. General measures: Cleanliness of body and underclothing and bed covering especially.

Schistosomiasis

1. *Recognition of the disease.*—During early stage, remittent fever, urticaria, abdominal pains, chills, anorexia, respiratory symptoms, leucocytosis with eosinophilia. Later diarrhea and dysentery with tenesmus, enlargement and tenderness of the liver, fistula, splenomegaly and ascites. Presence of schistosoma ova in stool. Massive larval infestation may cause acute prostration and high fever.
2. *Etiological agent.*—Animal parasites of the class Trematoda, genus *Schistosoma*. Three species infest man, *S. japonicum* (Far East, including Philippines), *S. hematobium* (Egypt and Africa), *S. mansoni* (Africa, Central and South America, and West Indies, including Puerto Rico and the Virgin Islands). Not indigenous in United States at present.
3. *Source of infestation.*—Waters containing the intermediary molluscan host, contaminated by human excrement containing the ova of the parasite.
4. *Mode of transmission.*—Ova hatch in water and enter mollusc, genus *Planorbis* in the West Indies. In the mollusc they multiply and develop into larval forms called "cercariae", which, on leaving the mollusc, penetrate the skin of man or certain animals.
5. *Incubation period.*—Three to five weeks after exposure to infestation. May be within a few days following massive larval infestation.
6. *Period of communicability.*—As long as the ova are discharged in the stools of infested persons, and as long as the cercariae are to be found in the water.
7. *Susceptibility and immunity.*—All who drink or come in contact with water containing cercariae. Immunity, none.
8. *Prevalence.*—Widely prevalent in the Orient. Varies considerably in different islands in the Pacific and the West Indies. Fairly prevalent in Puerto Rico.
9. *Methods of control:*

A. The infested individual, contacts, and environment:
1. Recognition of the disease by symptomatology, precipitin and complement fixation tests, and microscopical examination of the stools for ova.
2. Isolation: None.
3. Concurrent disinfestation: Sanitary disposal of feces.
4. Terminal disinfestation: Chemical and other treatment of infested waters to destroy snails.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infestation: In indigenous areas surveys of population to determine range and degree of infestation. Examination of local waters for infested snails.

B. General measures:
1. **Regulation of disposal of sewage.**
2. **Conservation of night soil long enough to sterilize ova through fermentation of medium.**
3. Cleansing of banks of infested water supplies to remove snail shelters.
4. Application of lime or copper sulphate to kill infested shelters.
5. Filtration of drinking water from infested sources.
6. Treatment of the infested person by tartar emetic or its derivatives.
7. Education of the people regarding spread and prevention of infestation.

Vincent's Infection (Angina, Stomatitis)

1. *Recognition of the disease.*—When lesions are on the tonsils or pharynx, there is ulcero-membranous inflammation, the exudate being easily removable, leaving raw, bleeding surface, slight fever, pain on swallowing, enlarged, tender cervical lymph nodes. A peculiar redness of the throat is usual. When there is a diffuse gingivitis or stomatitis, the ulceration is less severe, the membrane usually lacking, and the pain and fever less marked. The causative micro-organism can be demonstrated under the microscope.

2. *Etiological agent.*—*Bacillus fusiformis* (Vincent's organism.)
3. *Source of infection.*—Discharges from the lesions of infected persons, and from carriers.
4. *Mode of transmission.*—Direct contact with infected persons or carriers and probably by articles freshly soiled by such persons.
5. *Incubation period.*—Variable and undetermined.
6. *Period of communicability.*—As long as the infecting organism is found in the mouth. Not readily communicable.
7. *Susceptibility and immunity.*—Susceptibility not general, although the stomatitis may be almost universal under conditions of depressed vitality, neglect of oral hygiene, and excessive use of tobacco by men. No immunity known to be acquired.
8. *Prevalence.*—Low incidence. Rather common among persons of low nutrition and neglected diseased teeth, more common in children than in adults under such conditions.
9. *Method of control:*
   A. Infected individual, contacts and environment:
      1. Recognition of disease and reporting: On clinical manifestations with or without bacteriological confirmation should be reported to school authorities when found among school children, and under conditions of military service should be reported whether as angina or stomatitis.
      2. Isolation: Exclusion from school or common eating facilities unless under active treatment.
      3. Concurrent disinfection: All discharges from mouth and nose.
      4. Terminal disinfection: None.
      5. Quarantine: None.
      6. Immunization: None.
      7. Investigation of source of infection: Inspection of mouths and throats of other children or adults associated with the patient, at home or in school. Carriers are too common to be worth searching for by culture methods.
   B. General measures:
      1. Encouragement of oral hygiene; correction of abnormal or diseased conditions of teeth.
      2. Facilities for preventive oral treatment of children.
      3. Education in matters of nutrition and hygiene of childhood.

Yaws (Frambesia)

1. *Recognition of the disease.*—The initial lesion in the form of a granuloma or papules, is located extragenitally, usually on the legs, and is often engrafted upon a preexisting wound or ulcer. In from 1 to 3 months, widespread lesions of the skin develop. The first generalized lesion may be in the form of a furfuraceous desquamation as though the skin had been dusted with flour, but soon characteristic raspberry-like lesions appear. Bone and joint pains are common, and bone lesions are frequently observed. The constitutional symptoms are mild and of little diagnostic value. Among the commonest lesions are those of the soles of the feet, giving rise to the condition known as "crab yaws" because of the difficulty and manner of locomotion. The course of the disease is chronic, and relapses are common. The blood Wassermann reaction and related tests become positive soon after the appearance of the initial lesion and remain positive for many years unless affected by treatment.
2. *Etiological agent.*—*Treponema pertenue.*
3. *Source of infection.*—Discharges from skin lesions and mucous membranes.
4. *Mode of transmission.*—Direct contact with lesions of patient and by biting and nonbiting flies which convey the discharges of infected persons to others.
5. *Incubation period.* Three and one-half weeks (experimental) to three or more months.
6. *Period of communicability.*—As long as the lesions are open and there are moist discharges.
7. *Susceptibility and immunity.*—Negroes more commonly susceptible than whites; children and young people more than adults. Recovery from an attack does not result in immunity to reinfection. It is neither congenital nor hereditary.

8. *Prevalence.*—Very common in the tropics, especially in Africa, Polynesia, the Philippines, and some parts of the New World. In the West Indies more prevalent in some villages than others. At present not known as indigenous in continental North America. Especially prevalent in some Caribbean islands (Antigua and other islands of the Leeward group).
9. *Methods of control:*
   A. The infected individual, contacts, and environment:
      1. Recognition of the disease and reporting.
      2. Isolation not practicable.
      3. Concurrent disinfection: Protection of all sores and lesions in endemic locality, and disinfection of soiled dressings.
      4. Terminal disinfection: None.
      5. Quarantine of cases entering noninfected area of tropics.
      6. Immunization: None.
      7. Investigation of source of infection: In indigenous areas local surveys of incidence should be made, range of prevalence determined, and cases in early stages sought for, especially in children.
   B. General measures:
      1. **Free clinics, laboratory service, and arsenicals for diagnosis and treatment.**
      2. Information service for physicians, patients, and public.
      3. Promotion of adequate personal prophylaxis.
      4. Education in schools, clinics, clubs, etc., as to methods of spread, prevention, and treatment.

Supplementary List C

Diseases of concern to health officers because of their group or epidemic occurrence and the practicability of their prevention.

Botulism.
Food infections and poisonings.
Pellagra.

Botulism

1. *Recognition of the disease.*—A disease of intoxication, the symptoms of which develop suddenly with gastro-intestinal pain and evacuations, prostration, and a variety of central nervous system paralyses, the first of which is likely to be an oculo-motor paralysis, all due to the toxin of the particular saprophytic organism. Biological and toxicological tests with laboratory animals may confirm presence of toxin of *B. botulinus* in the food.
2. *Etiological agent.*—The toxin produced by the botulinus bacillus in foods improperly processed.
3. *Source.*—Food usually taken uncooked from cans or jars not subjected to adequate heat of sufficient duration or under sufficient pressure during the processing.
4. *Mode of transmission.*—Only by eating food containing the botulinus toxin.
5. *Incubation period.*—This term does not apply. Symptoms appear almost always within 24 hours after taking the particular food product, the interval being determined by the amount of the poisoned food taken and its botulinus toxin content.
6. *Communicability.*—This term does not apply. The disease is not conveyed from man to man, or among animals or men, except as food containing the botulinus toxin is consumed by them.
7. *Susceptibility and immunity.*—These terms do not apply. The symptoms develop according to the amount of toxin ingested in relation to body weight of the person. There is no immunity, acquired or artificial.
8. *Prevalence.*—Sporadic cases and groups of cases occur in all countries and always in relation to some perishable food product which has been so kept or preserved as to permit the development, under partially anaerobic conditions, of *B. botulinus*, to the extent of forming the toxin that causes the symptoms. In the United States the disease has in recent years followed most commonly the use, without further or adequate cooking, of home-canned vegetable and meat products.

9. *Methods of control:*
   1. Governmental control by regulation and inspection of commercial processing of canned and preserved foods.
   2. Education of housewives and others concerned with home canning of foods in the essentials of safe processing, as to time, pressure, and temperature factors.
   3. Education in value of heating with a small amount of soda, canned green and leafy vegetables before serving, and the thorough cooking of sausage and other meats and fish products held for later consumption.

Food Infections and Poisonings

1. *Recognition of the disease.*—Acute onset, usually with nausea and abdominal pain or distress, with vomiting and diarrhea, prostration, headache, and sometimes fever. Examination of vomitus and feces may reveal the infecting micro-organism, or the poisonous substance.
2. *Etiological agent.*—A variety of organisms, oftenest of the enteriditis or salmonella, or staphylococcus groups. A variety of organic and inorganic poisons.
3. *Source of infection.*—Food recently ingested.
4. *Mode of transmission.*—In the case of bacterial poisonings, by the transfer of the particular etiological agent by food handlers to the food ingested. Hands unwashed after use of toilet, or hands or arms with furuncles, boils, or other sores are usual means of conveyance of contamination to foods. Ingestion of foods to which some poisonous substance was accidentally or intentionally added, or in which a natural but poisonous substance occurs, is a direct cause of food poisoning.
5. *Incubation period.*—In the case of bacterial infections may be from 1 to 24 hours after ingestion of food. The symptoms may develop almost immediately, or several hours after ingestion of nonbacterial poisons in the food.
6. *Period of communicability.*—This term does not apply to these conditions.
7. *Susceptibility and immunity.*—These do not apply.
8. *Prevalence.*—Sporadic, but in the main of rather common occurrence, especially in persons taking meals away from home, and in public eating places.
9. *Methods of control:*
   1. All group outbreaks of infections and poisonings attributed to foods should be at once reported to the department of health.
   2. Specimens of the foods suspected should be secured and used for laboratory examination.
   3. The vomitus and feces of patients should be collected for bacteriological and chemical examination.
   4. Persons concerned with the preparation and serving of foods should be brought under observation for medical and bacteriological examination to determine the possible origin, whether from bowel discharges or infections of the skin.
   5. Epidemiological inquiries should include particular study of water and milk used by the persons affected.

Isolation, quarantine, concurrent and terminal disinfection are not applicable in such cases.

Pellagra

1. *Recognition of the disease.*—Pellagra is a constitutional or general disease brought about by lack of protective or preventive substances in the diet, a deficiency disease, preventable by appropriate additions of pellagra preventive substances to the diet, characterized by symmetrical erythematous dermatoses on the exposed parts of the head, neck, and extremities, appearing commonly as the spring and summer advance, by gastro-intestinal disorders, and glossitis and stomatitis, and in the advanced stages, by lethargy, emaciation, and mental confusion and deterioration.
2. *Etiology.*—The cause is believed to be the lack of one or more protective accessory food factors in the diet over a prolonged period of months or years, still not exactly determined but referred to as pellagra-preventive substances.
3. *Source.*—Diets deficient in pellagra-preventive substance.
4. *Transmission.*—Term does not apply. Not communicable but occurring in man and dog from similar dietary deficiencies.

5. *Incubation period.*—Term does not apply. The symptoms rarely appear within 3 months after use of a controlled and artifically deficient diet in man or dogs. History of deficient diet in human cases is usually one of months or years.
6. *Period of communicability.*—Term does not apply.
7. *Susceptibility and immunity.*—Susceptibility is general. No immunity.
8. *Prevalence.*—Occurrence of the disease is rare and sporadic, outside of subtropical areas where chronic poverty, ignorance in food uses, and unavailability of the pellagra-preventive foods prevail. Individual cases and institutional groups of cases in temperate and cold climates can be traced to a particular restriction by choice or necessity in the pellagra-preventive elements of the diet. In the southern States where diets are often seriously deficient in this respect, the incidence of the disease varies with the economic status of individuals and communities.
9. *Methods of control*·
   1. Education in suitable use of pellagra-preventive articles of diet, particularly the leafy green vegetables, fresh milk, and adequate animal protein intake.
   2. Provision of dried brewers' yeast as containing specific pellagra-preventive substance to be distributed by the health or other public authority among persons economically unable to provide pellagra-preventive substance by usual table food

DEATHS DURING WEEK ENDED JULY 20, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended July 20, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,433	7,332
Deaths per 1,000 population, annual basis	10.4	10.2
Deaths under 1 year of age	486	544
Deaths under 1 year of age per 1,000 estimated live births	45	51
Deaths per 1,000 population, annual basis, first 29 weeks of year	12.0	11.9
Data from industrial insurance companies:		
Policies in force	67,924,936	67,664,105
Number of death claims	11,092	11,468
Death claims per 1,000 policies in force, annual rate	8.5	8.8
Death claims per 1,000 policies, first 29 weeks of year, annual rate	10.2	10.4

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended July 27, 1935, and July 28, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 27, 1935, and July 28, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
New England States:								
Maine			1		75	12	1	1
New Hampshire						7	0	0
Vermont					32	2	0	0
Massachusetts	6	15			105	94	3	1
Rhode Island	3	1			53		0	0
Connecticut	9				68	32	1	0
Middle Atlantic States:								
New York [2]	8	26	[1] 1	[1] 1	690	189	11	1
New Jersey	8	10	1	5	160	51	3	0
Pennsylvania [2]	16	38			242	366	6	7
East North Central States:								
Ohio	27	29	5	12	243	226	6	3
Indiana	9	12	24	1	20	29	4	0
Illinois	25	22	6	7	161	171	6	1
Michigan	8	3	4	1	318	61	5	0
Wisconsin	3	9	24	5	386	327	1	2
West North Central States:								
Minnesota		3	1	2	33	31	1	0
Iowa [2]	4	4	1		15	29	4	0
Missouri	10	16	13	8	24	30	0	0
North Dakota		7			46	24	0	1
South Dakota					9	8	0	0
Nebraska	1	1			13	4	1	1
Kansas	3	20	2	2	50	35	3	1
South Atlantic States:								
Delaware	2				13	1	0	0
Maryland [2 3 4]	5	3		1	10	30	0	0
District of Columbia	11	2			5	5	4	3
Virginia [2]	16	10			60	107	5	0
West Virginia	11	12	16	8	21	40	2	0
North Carolina [3]	13	7	3		12	74	0	1
South Carolina [4]	2	2	46	38	2	15	0	0
Georgia [4]	10	9					0	0
Florida [4]	6	10		3	1	36	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 27, 1935, and July 28, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
East South Central States:								
Kentucky	3	6			40	35	1	1
Tennessee	5	6	18	6		19	1	1
Alabama [4]	26	9	3	1	12	81	2	0
Mississippi [3]	11	8					0	1
West South Central States:								
Arkansas	2	2	3	1	2		0	0
Louisiana	14	8	13	3	9	6	1	0
Oklahoma [5]	2	2	16		5	2	3	0
Texas [4]	35	33	10	26	14	60	2	0
Mountain States:								
Montana [2]	4	1	9		15	11	1	0
Idaho					2	2	0	0
Wyoming [2]	2	1			7	12	0	0
Colorado [2]	10	3			12	60	1	0
New Mexico	2	3				17	0	0
Arizona	2			2	5		0	0
Utah [3]		1			5	3	0	0
Pacific States:								
Washington	1	2			60	31	0	1
Oregon			11	12	46	15	0	0
California [2]	19	40	20	10	223	55	7	0
Total	354	396	251	155	3,333	2,445	86	27
First 30 weeks of year	16,969	19,273	103,251	47,418	630,871	663,397	3,946	1,500

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
New England States:								
Maine	0	1	18	11	0	0	0	3
New Hampshire	0	1	4	1	0	0	1	0
Vermont	0	1	4	2	0	0	0	1
Massachusetts	9	8	27	67	0	0	3	3
Rhode Island	1	0	2		0	0	0	0
Connecticut	5	0	15	9	0	0	2	2
Middle Atlantic States:								
New York [2]	44	9	151	112	0	0	8	19
New Jersey	5	2		27	0	0	2	13
Pennsylvania [2]	4	2	141	106	0	0	15	21
East North Central States:								
Ohio	6	7	65	110	0	0	22	28
Indiana	2	2	30	14	2	0	15	21
Illinois	4	7	153	80	0	0	29	61
Michigan	5	4	65	52	0	0	15	12
Wisconsin	1	1	75	42	1	22	1	7
West North Central States:								
Minnesota	0	1	36	19	1	3	24	1
Iowa [2]	1	1	26	17	5	1	2	2
Missouri	0	1	18	27	0	1	25	66
North Dakota	0	0	7	9	0	1	4	1
South Dakota	0	3	6	1	2	1	0	2
Nebraska	0	2	10	4	5	0	0	2
Kansas	2	2	18	16	2	1	26	29
South Atlantic States:								
Delaware	0	0	1		0	0	0	0
Maryland [2 3 4]	2	1	14	12	0	0	12	15
District of Columbia	6	0	6	2	0	0	6	3
Virginia [2]	87	0	18	19	0	0	36	39
West Virginia	0	3	17	19	0	0	22	23
North Carolina [2]	52	1	17	15	1	0	46	33

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 27, 1935, and July 28, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
South Atlantic States—Continued.								
South Carolina [4]	6	1	3	4	0	0	25	31
Georgia [4]	2	1	6	3	0	0	33	69
Florida [4]	1	0	4		0	0	5	2
East South Central States.								
Kentucky	10	10	17	18	0	0	37	39
Tennessee	9	1	10	7	0	0	44	74
Alabama [4]	4	2	8	7	0	0	31	47
Mississippi [3]	2	0	8	5	0	0	16	26
West South Central States.								
Arkansas	0	0	2		2	0	29	37
Louisiana	1	0	5	4	0	0	27	34
Oklahoma [5]	0	0	11	10	0	0	41	33
Texas [4]	1	5	14	20	3	0	31	86
Mountain States.								
Montana [2]	0	2		1	3	1	3	0
Idaho	0	13	1	4	1	0	0	0
Wyoming [2]	0	1	19	3	9	0	0	0
Colorado [2]	0	1	20	18	0	0	1	9
New Mexico	1	3	4	5	0	0	14	6
Arizona	0	1	1		0	0	0	1
Utah [3]	1	1	14	9	0	0	0	2
Pacific States.								
Washington	0	34	10	17	14	8	3	11
Oregon	0	1	17	16	3	5	3	6
California [2]	21	120	93	76	1	0	[illegible]	11
Total	298	257	1,211	1,02[illegible]	55	44	669	931
First 30 weeks of year	1,897	3,180	177,648	145,411	5,221	3,686	6,965	8,255

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended July 27, 1935, 24 cases, as follows: New York, 1; Pennsylvania, 1; Iowa, 2; Maryland, 1; Virginia, 5; North Carolina, 3; Montana, 3; Wyoming, 6; Colorado, 1; California, 1.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended July 27, 1935, 29 cases, as follows: Maryland, 1; South Carolina, 1; Georgia, 12; Florida, 2; Alabama, 9; Texas, 4.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June 1935										
Alabama	6	38	98	897	335	148	10	30	2	94
Arizona	2	8	15	1	50		1	78	0	16
Montana	1	11	36		635		2	47	13	8
New York	96	139		8	11,258		23	2,709	0	30
Oklahoma[1]	9	22	138	106	165	51	1	31	4	38
South Dakota		9	1		93		1	33	70	0
Washington	9	2	24		1,299			141	123	13

[1] Exclusive of Oklahoma City and Tulsa.

June 1935

	Cases
Anthrax:	
South Dakota	1
Chicken pox:	
Alabama	44
Arizona	67
Montana	84
New York	2,381
Oklahoma [1]	12
South Dakota	21
Washington	387
Dengue:	
Alabama	8
Dysentery:	
Alabama (amebic)	6
Arizona (bacillary)	7
New York (amebic)	2
New York (bacillary)	11
Oklahoma [1]	34
Washington (amebic)	1
Epidemic encephalitis:	
Alabama	5
Montana	1
New York	13
German measles:	
Arizona	22
Montana	168
New York	10,446
Washington	508
Hookworm disease:	
Arizona	1
Impetigo contagiosa:	
Montana	4
South Dakota	1

June 1935—Continued

	Cases
Mumps:	
Alabama	85
Arizona	96
Montana	120
Oklahoma [1]	39
South Dakota	47
Washington	241
Ophthalmia neonatorum:	
Alabama	1
New York	8
Paratyphoid fever:	
New York	3
Puerperal septicemia:	
Montana	1
Rabies in animals:	
Alabama	59
New York [2]	1
Washington	4
Rabies in man:	
Washington	1
Rocky Mountain spotted fever:	
Montana	38
South Dakota	4
Washington	1
Scabies:	
Montana	3
Septic sore throat:	
Montana	13
New York	57
Oklahoma [1]	25
Washington	1

June 1935—Continued

	Cases
Tetanus:	
Alabama	6
New York	3
Oklahoma [1]	1
Tick paralysis:	
Washington	1
Trachoma:	
Alabama	3
Arizona	30
Montana	11
Oklahoma [1]	3
Trichinosis:	
New York	24
Tularaemia:	
Montana	3
Typhus fever:	
Alabama	34
Undulant fever:	
Alabama	5
Arizona	1
Montana	1
New York	33
South Dakota	1
Washington	3
Vincent's infection:	
New York [2]	63
Washington	2
Whooping cough:	
Alabama	145
Arizona	54
Montana	192
New York	1,697
Oklahoma [1]	103
South Dakota	46
Washington	87

PLAGUE-INFECTED GROUND SQUIRRELS IN GRANT AND WALLOWA COUNTIES, OREG., AND BEAVERHEAD COUNTY, MONT.

Of 5 ground squirrels received at the San Francisco laboratory July 12 and 16, 1935 (3 *Citellus columbianus* and 2 *Citellus oregonus*), 4 were proved positive for plague on July 22 and 23, and positive proof in the other, *Citellus oregonus*, appeared imminent. One lot of 7 squirrels taken in the vicinity of Fox Creek, Grant County, Oreg., was proved positive on July 24, as was also 1 ground squirrel received on July 19 from Dillon, Beaverhead County, Mont.

[1] Exclusive of Oklahoma City and Tulsa.
[2] Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 20, 1935

This table summarizes the reports received regularly from a selected list of 125 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	0	0	0	0	0	0	3	22
New Hampshire:											
Concord	0	------	0	0	0	0	0	0	0	0	10
Manchester	------	------	0	------	3	------	------	0	------	------	19
Nashua	0	------	------	0	------	0	0	------	0	0	------
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	------
Burlington	0	------	0	1	0	0	0	0	0	0	7
Rutland	0	------	0	1	0	2	0	1	0	8	4
Massachusetts:											
Boston	3	------	0	25	14	11	0	14	1	13	195
Fall River	0	------	0	0	4	1	0	3	0	1	36
Springfield	1	------	0	1	0	2	0	0	0	6	26
Worcester	0	------	0	0	4	9	0	1	0	1	38
Rhode Island:											
Pawtucket	0	------	------	0	------	0	0	------	0	0	10
Providence	0	------	0	69	5	7	0	2	0	18	50
Connecticut:											
Bridgeport	0	------	0	5	2	2	0	0	0	0	27
Hartford	0	------	0	1	2	0	0	0	0	16	40
New Haven	0	------	0	0	0	0	0	0	0	2	35
New York:											
Buffalo	0	------	0	7	14	15	0	6	0	23	126
New York	15	------	0	387	60	45	0	88	11	115	1,361
Rochester	0	------	0	9	0	2	0	1	1	8	57
Syracuse	0	------	0	163	1	6	0	0	0	23	40
New Jersey:											
Camden	0	------	0	0	0	0	0	0	0	2	33
Newark	0	------	0	33	4	8	0	8	0	42	92
Trenton	0	------	0	0	2	1	0	2	0	0	25
Pennsylvania:											
Philadelphia	0	------	2	19	17	23	0	12	4	50	440
Pittsburgh	1	1	2	14	7	12	0	13	1	32	130
Reading	0	------	0	9	1	1	0	0	0	2	20
Scranton	1	------	------	2	------	0	0	------	0	3	------
Ohio:											
Cincinnati	0	------	0	1	5	2	0	4	0	6	128
Cleveland	6	1	0	78	8	7	0	18	2	63	175
Columbus	0	------	0	2	0	0	0	12	0	3	108
Toledo	1	------	0	14	2	2	0	2	0	6	60
Indiana:											
Anderson	0	------	0	0	0	0	0	1	0	0	10
Fort Wayne	2	------	0	0	3	1	0	0	0	1	29
Indianapolis	0	------	0	12	6	1	0	4	1	10	82
Muncie	0	------	0	0	3	1	0	0	0	0	11
South Bend	0	------	0	0	1	0	0	0	0	1	16
Terre Haute	0	------	0	1	0	0	0	0	0	0	26
Illinois:											
Alton	0	------	0	0	0	0	0	0	0	0	6
Chicago	11	------	1	96	24	82	0	49	0	137	585
Elgin	0	------	0	0	0	0	0	0	0	5	4
Moline	0	------	0	0	0	1	0	0	1	5	5
Springfield	0	------	1	0	1	1	0	0	0	6	18
Michigan:											
Detroit	5	4	1	21	10	15	0	15	1	143	244
Flint	0	------	0	1	2	1	0	0	0	14	21
Grand Rapids	0	------	0	7	1	6	0	0	0	22	27
Wisconsin:											
Kenosha	0	------	0	0	0	0	0	0	0	2	8
Milwaukee	0	------	0	179	3	16	0	2	0	42	83
Racine	0	------	0	15	0	7	0	0	0	20	10
Superior	0	------	0	2	0	0	0	0	0	10	5
Minnesota:											
Duluth	0	------	0	0	1	1	0	0	0	6	13
Minneapolis	3	------	0	4	4	12	0	3	18	4	79
St. Paul	0	------	0	5	1	6	0	2	2	5	52

City reports for week ended July 20, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Iowa:											
Cedar Rapids	0			0		0	0		0	2	
Davenport	1			0		0	0		0	0	
Des Moines	0			0		0	0		0	0	27
Sioux City	0			5		0	0		0	7	
Waterloo				0		1	1		1	2	
Missouri:											
Kansas City	4		0	1	3	2	0	6	1	0	78
St. Joseph	0		0	0	8	0	0	0	0	0	34
St. Louis	5		0	3	2	2	0	10	6	13	171
North Dakota:											
Fargo	0		1	2	0	3	0	0	0	0	4
Grand Forks	0			0		0	0		0	4	
Minot	0			0		0	0		0	1	7
South Dakota:											
Aberdeen	0			0		0	0		0	1	
Nebraska:											
Omaha	2		0	1	4	1	0	7	0	1	55
Kansas:											
Lawrence	0			1		0	0		0	0	
Topeka	0		0	0	4	0	0	0	0	11	15
Wichita	0		0	2	2	1	0	1	4	6	25
Delaware:											
Wilmington	0		0	0	0	0	0	0	0	0	26
Maryland:											
Baltimore	3	2	0	0	9	9	0	9	4	33	188
Cumberland	0		0	1	0	0	0	1	0	0	9
Frederick	0		0	0	0	0	0	0	1	0	3
Dist. of Columbia:											
Washington	10	1	0	5	4	3	0	8	1	1	142
Virginia:											
Lynchburg	0		0	0	0	0	0	0	4	21	13
Richmond	0		0	2	3	1	0	7	0	0	65
Roanoke	0		0	1	0	0	0	1	1	1	15
West Virginia:											
Charleston	1			0		0	0		1	0	1
Huntington	0			0		0	0		3	0	
Wheeling	1		0	3	1	1	0	0	0	3	14
North Carolina:											
Gastonia	1			0		0	0		0	0	3
Raleigh	2		0	0	0	0	0	0	3	1	6
Wilmington	0		0	0	3	0	0	0	0	3	14
Winston-Salem	0		0	0	0	0	0		0	0	7
South Carolina:											
Charleston	0		0	0	1	0	0	2	1	0	23
Columbia	0		0	0	0	0	0	0	0	0	6
Florence	0		0	0	0	0	0	2	0	1	11
Greenville			0		3			2			18
Georgia:											
Atlanta	8	2	0	1	1	0	0	1	2	19	77
Brunswick	0		0	0	0	0	0	0	0	0	2
Savannah	0	2	0	2	0	0	0	0	2	1	27
Florida:											
Miami	0		0	0	1	0	0	1	1	0	26
Tampa	0		0	0	0	0	0	1	0	0	21
Kentucky:											
Ashland											
Covington	0			0		0	0		0	0	
Lexington	0		0	0	2	0	0	3	0	1	21
Louisville	1		0	1	3	4	0	3	0	34	49
Tennessee:											
Knoxville	1		0	3	0	3	0	1	2	0	23
Memphis	0		0	0	1	5	0	6	3	10	74
Nashville	0		2	0	2	1	0	4	0	5	59
Alabama:											
Birmingham	1		0	0	2	1	0	4	0	0	61
Mobile	0		0	0	0	1	0	1	1	0	20
Montgomery	0			0		0	0		0	0	
Arkansas:											
Fort Smith	0			0		1	0		1	1	
Little Rock	0		0	0	3	0	0	2	0	1	7
Louisiana:											
New Orleans	0		1	0	11	0	0	8	0	0	148
Shreveport	3		1	0	2	0	0	1	0	2	47

City reports for week ended July 20, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Texas:											
Dallas	5	------	0	0	5	3	2	3	0	3	55
Fort Worth	0	------	0	0	0	0	0	2	3	0	21
Galveston	1	------	0	0	0	0	0	1	1	0	20
Houston	4	------	0	0	5	1	0	11	0	0	77
San Antonio	4	------	1	0	1	1	0	7	0	4	67
Montana:											
Billings	0	------	0	0	1	0	0	0	0	0	8
Great Falls	0	------	0	0	0	0	0	0	0	8	12
Helena	0	------	0	1	0	0	0	0	0	0	3
Missoula	1	------	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	1	------	0	0	0	2	0	0	0	0	5
Colorado:											
Colorado Springs	0	------	0	0	0	4	0	1	0	1	8
Denver	7	------	0	19	2	8	0	6	0	0	63
Pueblo	0	------	0	3	1	2	0	0	0	0	8
New Mexico:											
Albuquerque	0	------	0	1	0	0	0	5	1	0	12
Utah:											
Salt Lake City	0	------	0	0	3	26	0	1	0	44	31
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	1
Washington:											
Seattle	0	------	2	42	3	1	0	5	0	2	93
Spokane	0	------	0	6	1	2	0	1	0	9	25
Tacoma	0	------	0	0	0	0	1	1	0	0	29
Oregon:											
Portland	2	------	1	10	4	3	0	2	0	[illegible]	85
Salem	0	------	--------	0	------	0	0	------	0	1	--------
California:											
Los Angeles	11	8	0	32	13	12	1	20	0	9	315
Sacramento	2	------	0	12	2	5	0	1	0	0	27
San Francisco	0	------	1	48	4	6	0	5	0	17	136

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
New Hampshire:			
Concord	0	0	1
Massachusetts:			
Boston	1	1	9
Fall River	0	0	2
Connecticut:			
Bridgeport	0	0	1
New York:			
New York	2	2	15
Rochester	1	0	0
New Jersey:			
Camden	0	0	1
Newark	0	0	1
Pennsylvania:			
Philadelphia	2	0	1
Ohio:			
Cincinnati	1	1	0
Cleveland	3	0	0
Illinois:			
Alton	1	0	0
Chicago	4	2	1
Springfield	1	0	0
Michigan:			
Detroit	0	1	4
Wisconsin:			
Racine	0	0	1
Iowa:			
Des Moines	1	0	0
Missouri:			
St. Louis	0	0	1
Delaware:			
Wilmington	1	0	1
Maryland:			
Baltimore	2	2	0
District of Columbia:			
Washington	2	2	1
Virginia:			
Lynchburg	1	0	4
Richmond	0	0	16
Roanoke	0	0	2
West Virginia:			
Wheeling	1	0	0
North Carolina:			
Raleigh	0	0	1
South Carolina:			
Charleston	0	0	1
Tennessee:			
Knoxville	1	0	0
Alabama:			
Montgomery	0	0	1
Arkansas:			
Little Rock	0	1	0
Colorado:			
Denver	1	0	0
Oregon:			
Portland	1	0	1
California:			
Los Angeles	0	0	11

Epidemic encephalitis.—Cases: New York, 2; Pittsburgh, 2; Cleveland, 1; St. Louis, 1; Baltimore, 1; Colorado Springs, 1.

Pellagra.—Cases: Philadelphia, 2; Atlanta, 2; Savannah, 2; Birmingham, 1; San Francisco, 1.

Rabies in man.—Memphis, 1 death.

Typhus fever.—Cases: Kansas City, Mo., 1; Charleston, S. C., 1; Savannah, 2; Montgomery, Ala., 6.

FOREIGN AND INSULAR

CUBA

Habana—Communicable diseases—4 weeks ended July 6, 1935.—During the 4 weeks ended July 6, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	1		Scarlet fever	1	
Malaria	[1] 20	1	Tuberculosis	29	4
Poliomyelitis	[1] 2		Typhoid fever	[1] 18	4

[1] Includes imported cases.

CZECHOSLOVAKIA

Communicable diseases—May 1935.—During the month of May 1935, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	3		Paratyphoid fever	0	
Cerebrospinal meningitis	21	6	Poliomyelitis	4	
Chicken pox	168		Puerperal fever	44	25
Diphtheria	1,656	105	Scarlet fever	1,776	22
Dysentery	9	3	Trachoma	87	
Influenza	806	26	Typhoid fever	218	22
Malaria	209		Typhus fever	8	

FEDERATED MALAY STATES

Vital statistics—1934.—The following vital statistics for the Federated Malay States for 1934 are taken from the report of the registrar general of births and deaths:

Population	1,631,728
Births	57,697
Births per 1,000 population	35.4
Deaths	34,985
Deaths per 1,000 population	21.4
Deaths under 1 year of age	9,376
Deaths under 1 year per 1,000 live births	163
Deaths from—	
Ankylostomiasis	83
Beriberi	340
Cancer	185
Cerebrospinal fever	2
Diarrhea and enteritis	1,005
Diphtheria	82
Deaths from—	
Dysentery	387
Heart disease	659
Influenza	40
Leprosy	11
Malaria	761
Pneumonia	1,793
Syphilis	128
Tetanus	99
Tuberculosis (all forms)	1,394
Typhoid fever	46
Typhus fever (tropical)	17
Violence	698

ITALY

Vital statistics—1934.—Following are vital statistics for Italy for 1934, as published in the Sanitary Bulletin:

Number of deaths	563,342
Deaths per 1,000 inhabitants	13.28
Infant mortality per 1,000 live births	98.7
Deaths per 1,000,000 inhabitants from—	
Diphtheria	67
Malaria	53
Deaths per 1,000,000 inhabitants from—	
Measles	82
Scarlet fever	23
Tuberculosis (all forms)	924
Tumor, malignant	807
Typhoid fever	115

YUGOSLAVIA

Communicable diseases—June 1935.—During the month of June 1935, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	67	10	Paratyphoid fever	13	1
Cerebrospinal meningitis	12	2	Scarlet fever	223	2
Diphtheria and croup	360	32	Sepsis	7	6
Dysentery	33	2	Tetanus	62	29
Erysipelas	133	6	Typhoid fever	169	13
Influenza	7		Typhus fever	131	11
Measles	769	9			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for July 26, 1935, pp. 967–983. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Aug. 30, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

Siam—Kanchanapuri Province.—For the period April 20 to July 9, 1935, 98 cases of cholera have been reported in the Province of Kanchanapuri, Siam.

Plague

Brazil—Pernambuco State.—According to a report dated Aug. 5, 1935, there have been 48 known cases of bubonic plague, with 14 deaths, in the towns of Novo Exu and Granito, Pernambuco State, Brazil.

Hawaii Territory—Island of Hawaii—Hamakua District—Kalopa.—Three plague-infected rats, 2 on July 19, 1935, and 1 on July 20, 1935, have been reported at Kalopa, Hamakua District, Island of Hawaii, Hawaii Territory.

United States.—A report of plague-infected ground squirrels in Montana and Oregon appears on page 1081 of this issue of Public Health Reports.

Typhus fever

China—Manchuria—Harbin.—According to unofficial reports there were at least 400 cases of typhus fever in Harbin, Manchuria, China, up to June 25, 1935.

Hawaii Territory—Honolulu.—During the week ended July 6, 1935, 1 case of typhus fever was reported at Honolulu, Hawaii Territory.

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C WILLIAMS, *Chief of Division*

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It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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CONTROL OF RABIES IN NEW YORK CITY *

By Robert Olesen, *Medical Director, United States Public Health Service, Public Health Administration, New York City*

CONTENTS

The prevention of rabies is often a difficult, expensive, and unsatisfactory procedure. On the one hand, public health authorities are handicapped by the fact that rabies in human beings occurs infrequently, and consequently there appears to be no urgent need for waging constant warfare against the malady; on the other hand, there is the confident expectation and blind faith of the public that adequate protection will be provided against a disease that may assume greater proportions if appropriate measures are lacking. Coupled with these handicaps is an indifference on the part of a considerable number of dog owners for the health and safety of the people generally.

The difficulties encountered in antirabic control can best be understood by a study of the various factors involved, especially in a large city. Therefore, the perplexing phases of the subject will be presented by means of statistical data, with analyses of the findings and suggestions for the more efficient handling of a problem that is becoming increasingly troublesome.

* Published with the permission of the Commissioner of Health, New York City, who assumes no responsibility for the views expressed.

1. REGULATIONS FOR DOG OWNERS IN NEW YORK CITY PRIOR TO 1935

During the period covered by the present article and until December 11, 1934, the regulations of the Department of Health of the city of New York required that dogs be muzzled when in public places. Unfortunately these regulations were seldom observed by dog owners or enforced by the responsible officials. Consequently it cannot be said that the restrictions were effective or that they were fairly tested. The principal requirements designed for the control of dogs were contained in the sanitary code and read as follows:

SEC. 10 Should a dog bite any person, it shall be the duty of the owner, or person having the same in his possession or under his control, immediately to notify said department [health] thereof, and surrender said dog to said department for inspection and observation

SEC. 17. No unmuzzled dog shall be permitted, at any time, to be on any public highway or in any public park or place in the city of New York.

After the report of a bite by a dog or other animal is received, the specially devised administrative machinery of the department of health is immediately set in motion. It is the aim of the employees engaged in this departmental activity to leave uncovered no loophole which may lead to the appearance of a case of human rabies. The chief objectives are, first, to protect the bitten person against possible rabies, and second, to locate and observe the animal that inflicted the bite. How this work is handled, how much it costs, and what are the results will be explained in the discussion that follows.

How reports of animal bites are handled In each of the five borough health offices there is a clerk whose principal duty it is to receive reports of animal bites and keep the records pertaining thereto. While most of the reports are received from various sources by telephone (this being a requirement of the sanitary code), some of the cases are reported in person, it being widely understood that such notification is necessary and desirable.

Upon receipt of an animal-bite report one of the uniformed police officers, attached to and paid by the department of health, visits the person bitten and the alleged dog owner, if he can be located, for the purpose of securing such preliminary information as may be available. However, experience has shown that much of the information obtained in this way is notoriously unreliable, the person bitten often exaggerating and the dog owner frequently understating the conditions under which the bite is inflicted.

It is the prime function of the sanitary patrolman to arrange for the delivery of all biting dogs to the nearest animal shelter of the American Society for the Prevention of Cruelty to Animals for observation by a department veterinarian. If the dog is manifestly vicious or ill, or the behavior is abnormal, the delivery must be accomplished immediately either by a city or private conveyance.

At the shelter the animal is confined in a separate cage and inspected daily until a decision as to its disposition can be made. Rabid animals are destroyed and their carcasses sent to the department laboratory for examination. The cases of vicious animals and those biting more than once are made the subjects of special hearings, as a result of which destruction or other disposition may be ordered.

When a dog is apparently healthy and the attack was apparently accidental or provoked, it is usually released to its owner after inspection at the shelter by a veterinarian. However, 7 days later the animal is again inspected by the same veterinarian. If no abnormality is noted, the dog is released, the owner being warned that the offense must not be repeated and that the regulations must be observed. For the guidance and peace of mind of the person bitten, a written notice is sent as soon as possible after it has been determined that the animal is free from rabies. However, when bites are severe, and especially when they involve the face, or when the bite has been inflicted by a stray dog that cannot be located, the necessity for the Pasteur prophylaxis is emphazised. When the bitten person declines to receive the prophylaxis, he is required to absolve the department, in writing, from responsibility resulting from the neglect. Of course, when the bite has been inflicted by a manifestly rabid animal or even one suspected of having rabies, the Pasteur prophylaxis is considered imperative. If necessary, persuasion and pressure are exerted in order that the injections may begin promptly and may be continued to completion.

Management of the biting dog.—There are several excellent reasons why calm and cool judgment should supplant hysteria in the handling of a dog that has bitten a human being. When summary action is taken under these circumstances, a valuable though temporarily excited animal that is free from disease may be unnecessarily destroyed. Furthermore, an animal may be destroyed before symptoms of rabies are recognizable, thus depriving the bitten person of the possible protection provided by the Pasteur prophylaxis. Therefore, adequate observation of a biting animal is essential to sensible action.

A rabid animal usually lives 5 or 6 days, and the saliva may be infective 3 or 4 days before clinical symptoms of the disease are manifest. The microscopic evidence of rabies, the Negri bodies, appears but little earlier than the clinical symptoms. When this evidence in the brain is lacking, a portion of the brain may be injected into test animals. However, this test requires from 2 to 4 weeks for its completion. Consequently an animal should not be killed before definite clinical manifestations are apparent.

The antirabic control measures in vogue in New York City may be considered successful, especially in view of the large number of dog

bites and the presence of animal rabies. Therefore, it is well to recount the procedures that are recommended for the first-aid treatment of bites and the institution of Pasteur prophylaxis.

Cauterization of bites.[1]—Cauterization of animal bites should be done as soon as possible after the wound has been inflicted. Fuming nitric acid is the most effective cauterizing agent, especially when applied within 48 hours. The acid should be applied from the point of a tapered glass rod or drop by drop from a capillary pipette, so that the quantity may be regulated. Contact with bony, cartilaginous, or bloodless parts should be avoided if possible. To these parts pure carbolic acid may be applied, while fuming nitric acid is used on the adjacent tissues. While the actual cautery is effective so far as it reaches the parts of a wound, the fuming nitric acid has the advantage of penetrating deep crevices which the iron cannot reach.

Fuming nitric acid is superior to pure carbolic acid, tincture of iodine, and silver nitrate in wounds made by rabid animals. Such lesions should not be sutured.

Who should receive antirabic prophylaxis?—The Pasteur prophylaxis should be administered to the following classes of persons and under the conditions stated:

1 To persons bitten by animals proved rabid either by clinical symptoms or by microscopic examination of the brain.

2. To persons who have not been bitten but whose hands or face have been contaminated with saliva of a rabid animal. This precaution is taken because of the possible existence of cracks in the skin, hangnails, or other small open wounds. The following incident may be cited in this connection:

A dog, 3 months old, which came from a litter in which the mother and the other animals had rabies, was a pet in a Civilian Conservation Corps camp in Los Angeles County, Calif. Investigation showed that 72 persons, including 62 Civilian Conservation Corps men, 4 United States forest rangers, and 6 civilians were bitten, licked, or otherwise exposed. The Pasteur prophylaxis was administered to all of these men and fortunately no human case of rabies occurred.[2]

3. To persons bitten by stray dogs which cannot be located—a precautionary measure.

4. Pending the laboratory examination of the brain of a biting animal, the symptoms or actions of which are suspicious, the bitten person may begin the prophylaxis as a precautionary measure.

5. Because of the many nerves in the face, head, and neck and the proximity to the brain, bites on these parts should be regarded as

[1] This information, as well as much that follows, has been abstracted from the Directions for Care and Treatment of Persons Bitten by Rabid Animals, prepared by the Bureau of Laboratories, Department of Health, of New York City

[2] One Rabid Puppy Sends 72 Men to Hospital Weekly Bulletin of the California State Department of Health, Aug 5, 1933

particularly dangerous, even though the presence of rabies is not definitely established. In such instances the prophylaxis should begin promptly and be continued with regularity.

Pasteur antirabic prophylaxis (Semple modification).—The material used in New York City is a virus vaccine prepared by the Semple method. It consists of a 4 percent emulsion of killed rabies fixed virus from the brains of rabbits. The virus is killed by incubating the phenolized emulsion for 24 hours at 37° C. Tests are made on susceptible animals to prove the absence of virulent virus.

The Pasteur prophylactic is not curative and is valueless after rabies has developed. The preventive course consists of daily injections for 14 days. Persons bitten on the head or neck by rabid animals, particularly when the wound has not been thoroughly cauterized with fuming nitric acid, may be given 21 or even 28 doses. These extra injections are suggested as a precautionary measure, even though there is no evidence that more than 14 doses are necessary.

Each of the 14 prescribed doses of vaccine is the same, 2 cc; children receive the same amount as adults. The injections are given into widely distant subcutaneous tissues of the anterior abdominal wall and the interscapular region, a cooled, sterile and germicide-free syringe being used. The interval between doses should be about 24 hours. No after-dressing is necessary.

While a patient is receiving the prophylaxis, the bowels should be kept freely open and the drinking of tea, coffee, and alcoholic beverages should be discouraged. Some local soreness, together with erythema about the site of puncture, may occur. Slight malaise may also be noted. Unusual symptoms, such as neuritis, call for prompt investigation by experts of the department of health. While warm and tepid baths are permissible during the course of injections, exposure to cold and cold bathing should be avoided.

2. STATISTICAL DATA

In its efforts to prevent rabies, the department of health has had an extensive and profitable experience, the various phases of which are well shown in the tabulations that follow and the discussion pertaining thereto.

Mortality from rabies.— While the number of human deaths from rabies is comparatively small, even in the aggregate, the fear and anxiety attending bites by the lower animals is so great that the disease assumes justifiable importance. The numbers of deaths from rabies in the United States registration area and in the city of New York during each year from 1908 to 1934 are shown in table 1. It will be noted that with one exception, 1928, the annual number of deaths from rabies in the registration area has been less than 100. The number of deaths ascribed to rabies in New York City during the same

period has been correspondingly low, especially in comparison with the ordinary communicable diseases. No deaths from rabies occurred among human beings in New York City during the years 1931, 1932, and 1933, but 2 deaths from this disease were reported during the month of August 1934.[3]

TABLE 1.—*Number of human deaths from rabies in the United States registration area and in New York City each year from 1908 to 1934*

Year	Registration area	New York City	Year	Registration area	New York City
1908	82	1	1922	46	1
1909	55	7	1923	55	3
1910	64	7	1924	59	0
1911	83	3	1925	83	5
1912	74	3	1926	86	1
1913	95	2	1927	95	6
1914	65	8	1928	107	4
1915	52	1	1929	81	1
1916	36	1	1930	60	1
1917	66	3	1931	55	0
1918	63	0	1932	55	0
1919	58	5	1933	65	0
1920	41	1	1934	(1)	2
1921	54	3			

1 Not available.

Factors influencing mortality from rabies.—The mortality from rabies is influenced by a number of factors, such as species of the biting animal, depth and location of the wounds, extent and thoroughness of first-aid treatment of the wounds, injury through bare skin, the interval between exposure and the institution of prophylaxis, and the methods of prophylaxis. McKendrick,[4] analyzing the reports from Pasteur institutes, presents findings that greatly increase our understanding of the conditions influencing favorable or disastrous outcome after dog bites.

[3] In order to exemplify the conditions under which such fatalities occur, a brief history of one of these cases is given. A 7-year old boy was bitten by a dog on July 11, 1934, resulting in lacerated wounds of the right eyelid, cheek, and chin. The wound of the eyelid was cleaned with boric acid, followed by a 20-percent solution of argyrol, and then closed with interrupted dermal suture, the other wounds were cauterized with nitric acid, followed by aromatic spirits of ammonia. On account of the severity of the wounds and the inclusion of the face, a double dose of antirabic vaccine (Semple modification) was administered on July 12 A 2-cc dose of the vaccine was given intramuscularly on the first day, another 2-cc dose on the following day, and 3-cc subcutaneously on the third day Thereafter 4-cc of the vaccine was administered subcutaneously each day until 15 injections had been received, the last being given on July 26. The child was reported to have been in good condition on July 29.

He remained well until August 5, when early in the morning he complained of pain in the right ear. Later in the day he vomited and continued to vomit at intervals until the following morning. On August 6 paralysis of the right side of the face developed, and there were many general convulsions. Upon admission to the hospital there was difficulty in swallowing, twitching of various parts of the body, and paralysis of the soft palate and vocal cords. The condition rapidly grew worse, cyanosis occurred, and the child died on the night of August 7. A laboratory examination of brain tissue removed at autopsy revealed the presence of Negri bodies.

After a period of observation the dog responsible for the bites was destroyed. Negri bodies were found in the brain tissue of the animal, proving rabies at the time of the biting.

[4] McKendrick, A. G.: A Third Analytical Review from Pasteur Institutes on the Results of Antirabies Treatment. Extract from the Quarterly Bulletin of the Health Organization of the League of Nations, 1:1, December 1932.

The ratio of mortality among those with deep wounds to that among persons receiving superficial wounds is approximately 4.4:1. The greatest number of wounds occurs on the extremities, and the mortality ratio between head and extremity wounds is 22:1; between head and trunk injuries, 5:1; and between trunk and extremities about even. The shorter period of incubation in the case of bites that are near the brain and the higher mortality in such cases among those receiving prophylaxis lends credence to the belief that the virus is transmitted along nerve trunks. Moreover, the shorter the distance to be traversed by the rabies virus, the shorter will be the latent period and the less time there will be for the establishment of immunity through prophylactic vaccination.

Long-haired dogs have rabies less frequently than short-haired ones, infectious saliva being removed mechanically by the hair. Clothing acts similarly in preventing the entrance of saliva into the tissues. Persons of non-European races who wear little clothing have a higher mortality from bites of rabid animals. The death ratio between those bitten on the bare skin and those bitten through clothing is approximately 9:1.

The handicap of delayed prophylaxis is more evident in subjects bitten in such parts as the head, where a short incubation is to be expected, than in those bitten on the extremities, where longer incubation periods are usual. There is some indication in the available figures that delayed prophylaxis increases the mortality. Therefore, speed is requisite in the treatment of these badly injured.

It is difficult to compare the relative efficiency of the different prophylactic methods because of the heterogeneity of the groups included in McKendrick's study. However, McKendrick reports that 162 persons, or 0.23 percent, of 69,541 individuals who received prophylactic vaccine died of rabies. Among those who received killed vaccine the mortality was 0.28 percent; with live vaccine, 0.21 percent; and with heated vaccine, 0.084 percent. However, the differences may be ascribed to the many variations in conditions between Europeans and non-Europeans rather than to the superiority of any particular prophylactic.

In McKendrick's series there were 19 instances of post-vaccinal paralysis, a percentage of 0.027, among 69,541 persons.

McCoy [5] states: "With the data at hand I regret that we have no grounds for recommending or discouraging the use of any form of treatment, nor have we any other suggestions as to how these unfortunate cases (antirabic vaccine paralysis) may be obviated."

Animal bites and rabies.—The effectiveness of rabies control can be gauged to some extent by the numerical relationship between bites

[5] McCoy, G. W. Antirabic Vaccine Paralysis, Consideration of Various Vaccines. Pub. Health Rept., 45: 1888, Aug. 15, 1930.

and rabies among the lower animals, especially the dog. In table 2 are recorded the number of reported instances in which individuals were bitten and the number of rabid animals discovered each year from 1908 to 1934 in New York City. It will be noted that the number of persons bitten varied but little from 1908 to 1923, despite the steady population increase. Thereafter a constant increase in the number of bites was recorded until a total of 20,416 was reached

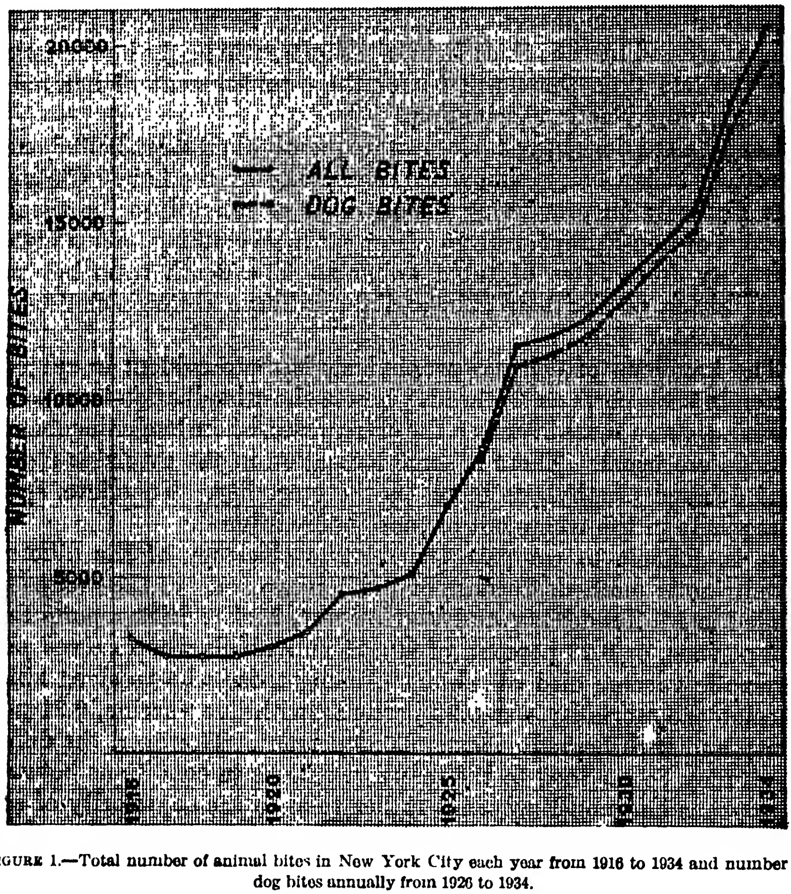

FIGURE 1.—Total number of animal bites in New York City each year from 1916 to 1934 and number of dog bites annually from 1926 to 1934.

in 1934. The relationship between the total number of animal bites and the number of dog bites is available from 1926 to 1934. While the proportion varies slightly from time to time, the year 1934, when dog bites comprised 95.2 percent of the total, may be regarded as typical of the ratio. These data are presented graphically in figure 1. In this connection it should be remembered that many bites, the number of which is merely conjectural, are never reported to the depart-

ment of health. The data here presented are instances definitely known to the authorities.

TABLE 2.—*Total number of reported animal bites, number of dog bites alone, and number of rabid animals reported each year from 1908 to 1934 in New York City*

Year	Total animal bites	Dog bites only	Rabid animals	Year	Total animal bites	Dog bites only	Rabid animals
1908	4,622	-------	104	1922	4,538	-------	50
1909	5,168	-------	57	1923	4,699	-------	27
1910	3,792	-------	75	1924	5,102	-------	30
1911	4,509	-------	212	1925	7,030	----	76
1912	4,192	-------	239	1926	8,608	8,311	463
1913	4,306	-------	268	1927	11,490	10,974	465
1914	4,640	-------	332	1928	11,783	11,283	258
1915	3,640	-------	116	1929	12,270	11,795	157
1916	3,247	-------	24	1930	13,322	12,781	101
1917	2,873	-------	31	1931	14,315	13,858	56
1918	2,771	-------	18	1932	15,830	14,742	18
1919	2,778	-------	41	1933	18,307	17,562	26
1920	3,049	-------	44	1934	20,416	19,443	44
1921	3,455	-------	85				

According to table 2 there were two periods, one between 1911 and 1915 and the other from 1926 to 1930, when considerable numbers of rabid animals were encountered. The most noteworthy feature of table 2 is the infrequency of animal rabies during the years 1931, 1932, and 1933, while the number of reported bites was increasing. However, it will also be noted that a larger number of human deaths from rabies were reported during the years 1927 and 1928, when rabies among dogs was unduly frequent.[6]

Monthly incidence of bites.—Contrary to what might be expected, the greatest number of animal bites are reported in New York City during the month of June. This fact is clearly shown in table 3, in which is set forth the number of bites during each month of the year, based on a 6-year average from 1929 to 1934. These data are displayed graphically in figure 3. It will be apparent that during July and August, the so-called "dog days", the incidence of animal bites is lower than during May and June. During the winter months, when both people and dogs are less liable to be in contact in the open, the reporting of dog bites is comparatively low. Those periods of the year when dogs spend more time in open places are marked by increased numbers of bites.

[6] Whether or not the apparent periodicity of animal rabies noted in New York City will be maintained in the future cannot, of course, be foretold. It is said that the same statistical peculiarity has been noted in several European countries. As to the reasons for these periods of high rabies incidence it may be suggested that to some extent the disease increased, (1) because of the introduction of virulent strains of rabies virus; (2) because of certain unrecognized conditions favorable to its dissemination; and (3) because of laxity on the part of responsible officials in exterminating stray, vicious, and sick animals. The records of the health department show that when animal rabies was particularly prevalent, extra efforts were put forth to impound stray and unlicensed dogs. It is conceivable that the favorable conditions that followed may have been due, in part at least, to the lessening of potential rabies carriers.

TABLE 3.—*Number of bites by dogs and other animals in New York City by months (6-year average, 1929–34)*

Month	Average number of bites
January	803
February	733
March	914
April	1,222
May	1,721
June	1,920
July	1,842
August	1,577
September	1,400
October	1,083
November	930
December	843

Dog and other bites.—Of the bites recorded in table 2, more than 95 percent were inflicted by dogs. The number and percentage of per-

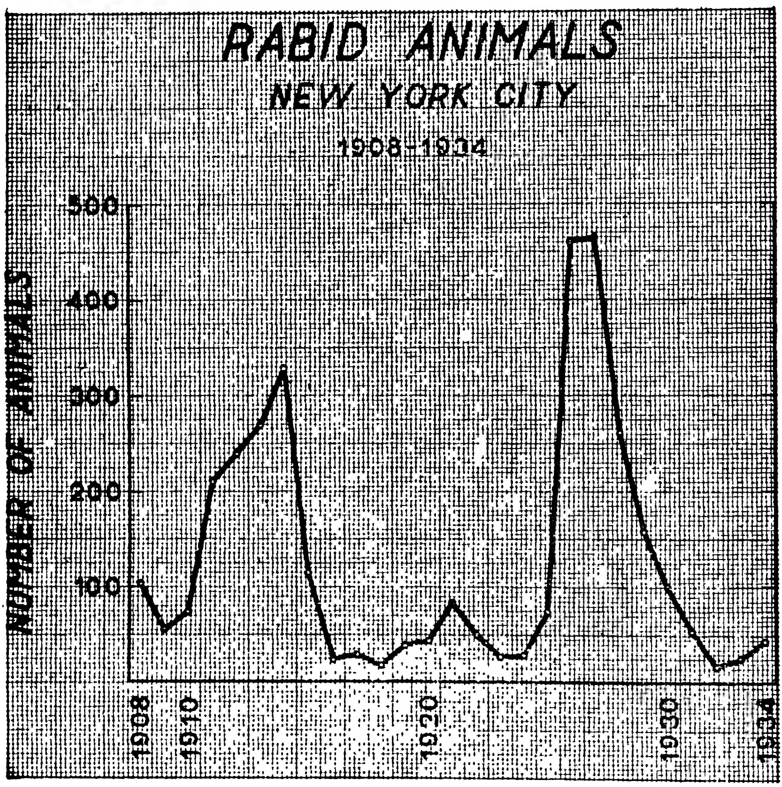

FIGURE 2.—Number of rabid animals encountered in New York City each year from 1908 to 1934.

sons reported to have been bitten by dogs, cats, and other animals in New York City during the years 1933 and 1934 are shown in table

4, these periods being selected as characteristic. Cats are responsible for 2.8 and 3.5 percent of the total numbers in 1933 and 1934, respectively. In addition to bites by dogs and cats, the Department of Health has received reports of bites inflicted by horses, rats,

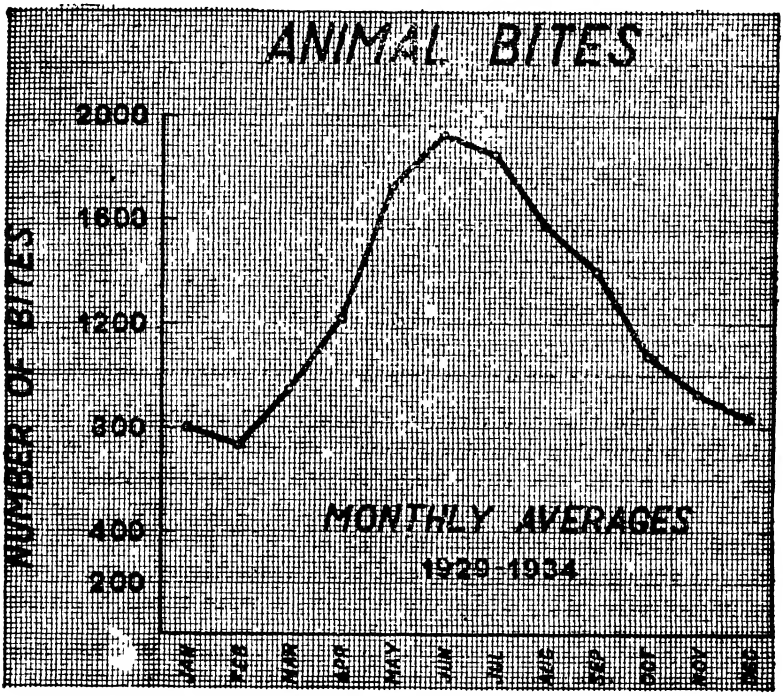

FIGURE 3.—Average monthly number of animal bites in New York City from 1929 to 1934.

squirrels, monkeys, parrots, snakes, insects, and wild animals in captivity, such as bears, lions, and tigers.

TABLE 4.—*Number and percentage of persons reported to have been bitten by dogs, cats, and other animals in New York City during the years 1933 and 1934*

Number of persons bitten by—	1933		1934	
	Number	Percent	Number	Percent
Dogs	17,562	95.9	19,443	95.2
Cats	506	2.8	718	3.5
Other animals	239	1.3	255	1.3
Total	18,307	100.0	20,416	100.0

Locations of bites on human body.—Table 5, which indicates the location upon the body of bites inflicted by dogs in New York City during 1933 and 1934, is of especial interest. This table shows that

nearly one-half of all reported dog bites were upon the legs, while slightly more than one-quarter were inflicted upon the hands. Face bites comprised 8.6 and 9.5 percent of all bites reported in 1933 and 1934, respectively; while bites on the arms accounted for 14.5 and 15.9 percent; and those upon the trunk for 7.1 and 5.1 percent in those years, respectively.

TABLE 5.—*Number and percentage of reported bites by dogs in New York City during 1933 and 1934, according to the parts of the human body bitten*

Location of bite	1933		1934	
	Number	Percent	Number	Percent
Arm	2,556	14 5	3,094	15.9
Face	1,503	8 6	1,851	9 5
Hands	4,682	26 7	5,485	28.2
Leg	7,569	43 1	8,032	41.3
Trunk	1,252	7 1	981	5.1
Total	17,562	100 0	19,443	100.0

Bites on bare skin and through clothing.—An animal bite through clothing is probably less dangerous than one on the unprotected skin, for some of the virus may be removed mechanically in the former instance. The extent to which such bites occur is shown in table 6. Here it is evident that 35.2 and 37.7 percent of the bites recorded during the years 1933 and 1934, respectively, were through the unprotected skin, while the remainder were through clothing.

TABLE 6.—*Number and percentage of reported bites by dogs in New York City in 1933 and 1934 on exposed portions of the human body and through clothing*

Location of bite	1933		1934	
	Number	Percent	Number	Percent
Exposed part	6,185	35 2	7,329	37 7
Through clothing	11,377	64 8	12,114	62.3
Total	17,562	100 0	19,443	100 0

Age groups of persons bitten.—Because children are more frequently in proximity to animals in open spaces and have a propensity for playing with dogs it might be expected that young persons are bitten more frequently than adults. This fact is borne out by the data in table 7, which shows that 59.1 and 58.8 percent of those bitten in New York City during 1933 and 1934, respectively, were under 16 years of age.

Table 7.—*Number and percentage of persons over and under 16 years of age who were bitten by dogs in New York City during the years 1933 and 1934*

Age group	1933		1934	
	Number	Percent	Number	Percent
Over 16 years of age	7,188	40.9	8,011	41.2
Under 16 years of age	10,374	59.1	11,432	58.8
Total	17,562	100.0	19,443	100.0

Location of dogs while biting.—Most bites are inflicted by dogs on streets or in open spaces. However, a considerable number of bites are reported as occurring within homes or within buildings, where many persons live in close proximity. The figures in table 8 show that approximately 34.9 and 37.4 percent of the bites (so-called "inside" bites) occurred in 1933 and 1934, respectively, within homes or buildings, while the remainder were inflicted in the streets, parks, or open spaces.

Table 8.—*Number and percentage of dogs biting within homes or enclosures and those biting on the streets or open spaces in New York City during 1933 and 1934*

Location of dog while biting	1933		1934	
	Number	Percent	Number	Percent
In house	6,140	34.9	7,268	37.4
On street	11,422	65.1	12,175	62.6
Total	17,562	100.0	19,443	100.0

Muzzling.—About 89 percent of the bites reported in New York City during 1933 and 1934 were inflicted by dogs having no restraint. Leashed animals were responsible for 9.5 percent of the bites in 1933 and 9.6 percent of those in 1934. Dogs alleged to have been muzzled were charged with 1 percent of the total number of bites, while still smaller numbers were inflicted by animals said to have been both leashed and muzzled. These data are set forth in table 9.

Table 9.—*Number and percentage of dogs reported as muzzled, leashed, muzzled and leashed, and without restraint at the time of biting in New York City during 1933 and 1934*

Status of dog while biting	1933		1934	
	Number	Percent	Number	Percent
Leashed and muzzled	33	0.2	56	0.3
Muzzled	178	1.0	236	1.2
Leashed only	1,669	9.5	1,865	9.6
Neither leashed nor muzzled	15,682	89.3	17,286	88.9
Total	17,562	100.0	19,443	100.0

Extent of antirabic prophylaxis.—Of the 18,307 persons bitten by animals in New York City during 1933, which year may be regarded as typical, 3,326, or 18.1 percent, were treated in the clinics especially maintained for this purpose by the department of health in each of the 5 boroughs. These and other pertinent data have been assembled in table 10. Records of the experience in handling the remaining 14,981 bitten persons is not available, as they were treated by private physicians and in hospitals. However, it is likely that approximately the same percentages of patients treated outside of the department of health clinics received the Pasteur prophylaxis.

TABLE 10.—*Number of patients receiving Pasteur antirabic prophylaxis (Semple modification) and number of doses of vaccine administered in each of the 5 borough clinics of the New York City Department of Health in 1933*

	Borough clinics					Total
	Manhattan	Bronx	Brooklyn	Queens	Richmond	
Number of patients	1,203	816	1,006	292	9	3,326
Prophylaxis advised	882	252	596	99	9	1,838
Prophylaxis taken	382	233	505	82	9	1,211
Prophylaxis refused	500	19	91	17	0	627
Prophylaxis complete	216	113	421	60	5	815
14 injections	215	111	416	57	5	804
21 injections		2	5	3		10
28 injections	1					1
Total injections	3,038	1,596	5,929	851	70	11,484
Prophylaxis incomplete	166	120	84	22	4	396
Total injections	1,493	854	748	164	4	3,263

It will be noted that 1,838, or 55.2 percent, of the bitten patients treated in the department of health clinics were advised to avail themselves of the Pasteur prophylaxis (Semple modification), this being supplied without cost by the city of New York for those who cannot afford to pay for the service. Prophylaxis was begun by 1,211, or 36.4 percent, of those bitten, but completed only by 815, or 24.5 percent. Thus, it will be seen that approximately one-half of the bitten persons were advised to take the Semple vaccine, but only one-fourth of all those bitten actually completed the prescribed course of 14 injections. Of the 1,211 persons who began the prophylactic course, 396 failed to receive the complete course. In such instances the bitten person is warned of possible consequences and required to sign a statement absolving the department of health from responsibility in the event that untoward symptoms arise. This procedure serves to impress hesitant persons with the seriousness of the situation.

Records of the department of health show that 14,747 injections of Semple vaccine were administered in 1933. Of these, 11,484 injections were used during complete courses of prophylaxis for 815 indi-

viduals. The remaining 3,263 doses were administered to 396 persons who discontinued the treatment before the prescribed number of injections had been given.

Laboratory examinations.—As shown in table 11, 458 examinations for Negri bodies were made in the department of health laboratories in 1933, and 574 in 1934, of which 5.6 percent were positive in 1933 and 7.6, in 1934, all being among dogs.

Other information of interest in this connection is also shown in table 11. Thus, in 1933, 42 persons were bitten by dogs known to have rabies, while 37 additional persons had some contact with the same animals. In 1934, 77 persons were bitten by rabid dogs and 51 others were in contact. All of the persons bitten by rabid animals during these 2 years received the Pasteur prophylaxis.

TABLE 11.—*Results of laboratory examinations of dogs and cats suspected of having rabies and number of persons bitten by and otherwise in contact with rabid dogs in the city of New York during 1933 and 1934*

Laboratory examinations	1933	1934
Number of dogs	427	539
Number of cats	31	35
Dogs positive for rabies	26	44
Cats positive for rabies	0	0
Number of persons bitten by rabid dogs	42	77
Number of persons not bitten but otherwise in contact with rabid dogs	37	51

3. NEW REGULATIONS FOR DOG OWNERS

The steady increase in the number of dog bites, the obvious failure of the muzzling requirement, the mounting cost of enforcement, and the inefficiency of canine vaccination against rabies convinced the department of health that a radical change of procedure was necessary. In order to learn what has been the experience in other places a questionnaire was sent to the 26 largest cities in the United States. Of these, 19 returned rather complete statistical information and interesting comment. However, it was the general consensus of opinion that, in the absence of any considerable incidence of human rabies, the muzzling of dogs is a failure and leashing is only slightly more enforceable. This arises, according to a number of city health officers, from the indifference of dog owners and law-enforcement officers alike.

On December 11, 1934, the Board of Health of the Department of Health of New York City rescinded the previous regulations and promulgated a new section of the sanitary code, which reads as follows:

SEC. 17. No dog shall be permitted, at any time, to be on any public highway or in any public park or place in the City of New York unless effectively muzzled or restrained by a chain or leash not exceeding six (6) feet in length. [Effective Dec. 11, 1934.]

Under this regulation a dog owner may choose between muzzling or leashing, except in parks, where the latter is required.

Prior to its adoption and in order to insure reasonable enforcement of the leashing regulation, a conference was held with the commissioner of police, the chief magistrate, and a representative of the American Society for the Prevention of Cruelty to Animals. The assurances of these officials that they will cooperate in enforcing the new requirement have been encouraging to the department of health, and the results will be watched with interest. Heretofore, dog owners have protested against muzzling. It now remains to be seen whether the alternative measure will be observed.

Beginning January 1, 1935, the number of sanitary patrolmen attached to the department of health was reduced from 53 to 11. This has effected a considerable saving but has necessitated a radical revision in the method of dog-bite control.

Cost of rabies control.—The cost of rabies prevention to the City of New York is probably in the neighborhood of $100,000 annually. This would appear to be relatively high were it not for the fact that a large population, estimated at 7,345,357 in 1933, is receiving the benefit of the expenditure. Unlike many other communities in which there is a considerable income from dog licenses, New York City makes this expenditure for the health and safety of its citizens without monetary return.

Under a charter[7] from the State of New York, the American Society for the Prevention of Cruelty to Animals is empowered to issue licenses for dogs and cats and collect the proceeds. Obviously this deprives the city of a considerable income. However, the society provides a shelter in each of the 5 boroughs in which animals that have bitten may be kept under observation. The society also collects stray animals and destroys those which are vicious or unwanted. The cooperation between this private organization and the city has been cordial and efficient.

The personnel required in the department of health for the prevention of rabies is considerable, as will be seen from the following list:

(1) One supervising clerk in central office.

(2) One special dog-bite clerk in each of the five borough offices.

(3) Up to January 1, 1935, 53 sanitary patrolmen spent about one-fourth of their time making dog-bite investigations; there are now 11. This reduction has resulted in a considerable saving, but has likewise necessitated a radical revision of the method of handling this work. The patrolmen now devote practically full time to the investigation and follow-up of dog-bite reports.

(4) Nine veterinarians, who spend about two-thirds of their time in dog-bite work.

(5) Doctors and nurses in each of the five antirabic clinics, which are devoted principally to the administration of Pasteur prophylaxis.

[7] Laws of 1894, ch. 115, as amended by laws of 1895, ch. 412, and laws of 1902, ch. 495.

In addition to the salaries of these workers there are numerous incidental expenses which greatly increase the expenditures for rabies control. Among these may be mentioned the following:

(1) Overhead—quarters, light, heat, janitor service, etc.
(2) Cost of conveying animals that have bitten to shelters for observation.
(3) Cost of Pasteur prophylactic vaccine and supplies.
(4) Cost of printing numerous forms used for recording data.
(5) Cost of laboratory examinations of brain tissue of animals suspected of having rabies.
(6) Telephone charges.
(7) Postage and incidentals.

The cost of rabies control to the city of New York does not include the maintenance of the several quarantine and observation shelters, the expense of which is borne by the American Society for the Prevention of Cruelty to Animals. Neither is the cost of first-aid treatment of bites by private physicians, hospitals, and drug stores, or the damage to clothing of those bitten included in the estimate.

It should be pointed out at this time that the service rendered by the department of health in preventing rabies is necessitated by the owning of dogs and other animals by a relatively small portion of the whole population. While the great majority of dogs are licensed in accordance with the requirements, the funds accruing from this source are not being used, except as previously noted, for rabies control. In order that the city may be reimbursed for its expenditures in this work it would seem that sufficient funds should be diverted from the income derived from licenses or that a small additional tax should be collected and utilized for the express purpose of rabies control.

Vaccination against canine rabies.—The preparation of a vaccine that will immunize dogs against rabies is a goal for which many laboratory workers have striven. Unfortunately evidence concerning the value of available vaccines is conflicting, indecisive, and unsatisfactory. Mulcahy,[8] for instance, believes that rabies is controlled by compulsory vaccination of dogs, and cites the work in the State of Connecticut as an example of its successful application. Plantereux,[9] in Algiers, strongly favors antirabic vaccination, though admitting occasional failures.

Hufnall[10] believes that proper vaccination prevents rabies in dogs. However, he advocates the establishment of uniform methods of vaccine production, adequate and uniform dosage, and Federal standardization of procedure throughout the United States. Hufnall states

[8] Mulcahy, John V.: Experience with Canine Antirabic Vaccine. In Canine-Feline Practice, compiled by J. V. Lacroix and published by the North American Veterinarian, Jan. 12, 1928.
[9] Plantereux, E.: Preventive Vaccination Against Rabies. Revue Vétérinaire et Journal de Médecine Vétérinaire et de Zootechnie, August 1929.
[10] Hufnall, W. T.: The Rabies Question. North American Veterinarian, 15: July 1934.

that the average dog-catching system is operated mainly and directly for the income to be derived for rabies control. Moreover, he intimates that dog catchers are often more energetic in well-to-do sections, where redemptions are likely.

Barnes et al.,[11] as the result of extensive experimental work, tentatively conclude that carbolized vaccines do not immunize dogs against rabies. Chloroform-treated vaccines, in their experience, were somewhat more encouraging. They conclude that "There undoubtedly is a successful way of immunizing dogs against rabies, but neither the proper method nor the proper vaccine seems to have been found." The evidence, then, seems to indicate strongly that vaccination against rabies is in the experimental stage and that, despite the claims of a few enthusiastic advocates, reliance should not at present be placed upon this measure. Instead there must be increasingly effective application of such obviously practical methods as licensing, quarantining, and the destroying of stray animals.

4. EDUCATIONAL EFFORTS

Education of prospective dog owners.—In their zealous efforts to control rabies public health officials have concentrated their attention upon two outstanding phases of the problem, namely, control of the biting animal and prophylaxis for the victim of the bite. At the same time an obvious duty has been entirely neglected. This dereliction concerns the failure to emphasize the need for discrimination in the selection, training, and care of dogs. Furthermore, it appears reasonable to decrease the dog population by weeding out the unfit and by stressing the expensiveness, unfairness, and general undesirability of keeping dogs under unfavorable conditions. Manifestly a dog is entitled to humane care.[12]

The size of the dog that one is to acquire should be determined, to a large extent, by the quarters in which the animal is to be kept. Generally speaking, small apartments or quarters in crowded cities are unfavorable for any animal, for there is no opportunity for exercise. Large, active young dogs require spacious facilities for exercise, and they thrive best in the open. A dog that is chosen as a child's companion should possess an invariably good disposition. Moreover, it should not be too enthusiastic at play lest the child be accidentally injured. In order to achieve such a desirable result, the dog should be competently trained from puppyhood. In general, females are considered much more intelligent than males, and they are also more gentle with children.

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[11] Barnes, M. F., Metcalfe, A. N., Martindale, W. E., and Lenz, W. J.: Canine Rabies Experimental Vaccination. Jour. Am. Veterinarian Assoc., 37: 740, May 1934.

[12] Many of the points mentioned have received attention in a radio lecture entitled "The Dog's Bill of Rights." Upon request a mimeographed copy of this lecture will be mailed, without cost, by the Bureau of Health Education, Department of Health, 139 Centre Street, New York City.

The purebred dog possesses no particular advantage over the dog of mixed breeding; and, unfortunately, because of unscientific and ill-advised mating, too many pure breeds have degenerated both mentally and physically. Some of these pedigreed animals are unsuited for companionship in the home. If, despite appropriate advice to the contrary, a person insists upon acquiring a dog, it should be known that, first of all, a capable veterinarian should be employed to determine whether the animal is in good health. Furthermore, advice should be regularly sought concerning diet, training, and current health problems.

A surly and unfriendly animal, unable to distinguish between friends and foes, is certainly a menace and should be destroyed. Likewise, a vicious animal, and there are many of them, should have no place in a civilized community. It is unfortunate that sentiment has blinded many dog owners and humane societies to the true facts of the rabies problem. If dogs were given reasonable consideration and care, as befits their peculiarities when living in close proximity to human beings, it is conceivable that bites would be fewer, that the need for antirabic prophylaxis would be lessened, and that expenditures of money and effort by public-health workers would be materially reduced.

Bites in relation to breeds.—From statistical compilations and extended observations by the veterinarians of the department of health it has become apparent that some breeds of dogs are more prone to bite than others. However, in presenting a list of the breeds most frequently charged with biting it is realized that certain inaccuracies and misinterpretations may be present. For instance, because of the popularity of a given breed, many such animals may be present in a community. Unless the exact percentage of biting dogs of each breed is known in relation to the total number of such animals the results may not be strictly comparable nor may definite conclusions be drawn.

The training and environment of dogs undoubtedly plays a considerable part in the infliction of bites. Therefore, in presenting a tentative list of the frequency with which bites are ascribed to certain breeds of dogs, due reservations should be made. The order in which biting dogs are listed, in order of greatest frequency, is as follows: German police, chow, poodle, Italian bull, fox terrier (crossed), chow (crossed), airedale, pekinese, German police (crossed).

This list suggests that some breeds of dogs bite more frequently than others. Furthermore, if bites are to be reduced in number, some attention should be directed to the selection of animals that may be presumed, on the basis of statistical evidence and experience, to bite less frequently. The application of this information may tend to safeguard human beings and animals against dogs known to bite.

5. CONCLUSION

Heretofore reliance in the control of rabies has unwisely and almost exclusively been placed in regulations which were difficult of enforcement. Future action, to be effective, must embrace educational efforts, primarily involving the dog owner but also extending to the general public. It is also to be hoped that success may be reached in preparing an effective vaccine against canine rabies.

Inasmuch as the muzzling of dogs, as a practical measure, is attended by difficulties, while leashing as a substitute is now on trial, the responsibility for bites should be placed squarely upon each dog owner. In any event, a city should be fully compensated for its financial outlay in preventing human and canine rabies. An adequate program includes persistent, all-year effort in ridding the community of stray and unlicensed animals. For this purpose a sufficiently large individual dog tax should be imposed.

The writer believes that each person bitten should receive compensation, whether the bite is provoked or unprovoked. A dog bite, frequently involving pain, fright, torn clothing, a doctor's bill, and sometimes hospital treatment, is a distressing experience. Moreover, a course of prophylactic injections is an ordeal, particularly for children. If the owners of biting dogs were sufficiently penalized, there would be a marked and rapid reduction in occurrences.

HEIGHT AND WEIGHT OF CHILDREN OF THE DEPRESSION POOR [1]

Health and Depression Studies No. 2

By CARROLL E. PALMER, M. D., *Consultant in Child Hygiene, United States Public Health Service* [2]

During the past few years conflicting reports have appeared concerning the effects of the present economic depression on the growth of children. Eliot and Burritt (*1*) have collected data which seem to show that there has been a significant increase of malnutrition in children in New York, Philadelphia, Detroit, and other large cities; Kiser and Stix (*2*), on the basis of measurements of 540 children from the lower east side in New York, believe that a definite deterioration

[1] From the Offices of Field Investigations in Child Hygiene and Statistical Investigations, U. S. Public Health Service, the Division of Research, Milbank Memorial Fund, and the Department of Biostatistics (Paper No. 203) of the School of Hygiene and Public Health, the Johns Hopkins University.

This is the second of a series of papers on sickness and medical care in relation to income, unemployment, and other related economic factors among groups of white wage-earning families. The first paper of the series is Relation of Sickness to Income and Income Change in 10 Surveyed Communities, by G. St. J. Perrott and Selwyn D. Collins. (See reference no. 9 at the end of this article.)

Earlier preliminary papers giving results for parts of the surveyed group are listed in the first paper in this series.

[2] The writer wishes to acknowledge the assistance of S. D. Collins, G. St. J. Perrott, and W. M. Gafafer, all of the U. S. Public Health Service.

of physical well-being has occurred in the children of the very poor, and Kerr (*3*) and Jacobs (*4*), summarizing conditions in Pennsylvania, found an increasing proportion of children to be 10 or more percent underweight in successive years from 1928 to 1932.

Opposed to the views of these workers are those of Warner, Emerson, and others (*5*), who have pointed out that malnutrition is a perennial problem, that no adequate method has yet been devised for estimating malnutrition, and that great care must be exercised against drawing hasty conclusions from the scanty data now available. These opinions are given some support in recent papers by the writer (*6*, *7*) where it is stated that no reduction was found to be clearly evident in the actual weights or yearly weight increments of school children of Hagerstown, Md., a representative small city.

In a large measure these opposing conclusions may be presumed to be due to many factors. First, it is clear that there must be recognizable differences in the possible effects of changed economic conditions in different parts of the country; especially it may be postulated that the changes which have occurred in the large metropolitan centers may not be comparable with those in the smaller urban and rural localities. Second, it must be equally clear that certain strata of the population may have been affected seriously by the recent economic disturbances and that others may have been relatively unaffected. In view of the importance of these presumably influential factors it has seemed desirable to attempt a study of the problem for particular population groups, and for specific economic classes. It is the purpose of this paper, therefore, to present the results of an investigation limited to children living primarily in large metropolitan areas for whom it has been found possible to collect data concerning their economic status during the past 4 years.

Material for the study comes from two sources: First, data on economic status collected in a survey, made jointly by the United States Public Health Service and the Milbank Memorial Fund, of approximately 1,000 families in each of the 6 cities, Baltimore, Birmingham, Cleveland, Greenville, S. C., Pittsburgh, and Syracuse; and second, seriatim measurements, which were transcribed from school records, of the height and weight of children from the surveyed families.

Details relating to the selection of the families interviewed, the facts obtained, and the general results of the various analyses have been reported in recent papers (*8*, *9*). It will be sufficient to state here, therefore, that data were available for the classification of approximately 5,000 more or less typical working-class urban families according to their economic status during the period 1929–33. For the purposes of the present study these families were grouped into three classes: (1) Those which remained relatively comfortable, that is,

whose income equaled $250 or more per capita per year throughout the 4-year period 1929–33; (2) those which remained relatively poor, that is, whose income was less than $250 per capita per year through the period; and (3) those which changed from a relatively comfortable to a poor economic status, or those families whose income dropped from more than $250 per capita per year to less than $250. Of the total of nearly 5,400 children, approximately 15 percent constituted the first class, 40 percent the second class, and nearly one-half made up the class which may be designated as the "depression poor."

The measurements from the yearly school records included all of the available records of height and weight made each school year from 1928–29 to 1932–33. Obviously it was impossible to find complete 5-year records of height and weight for all of the children in these families, but in the total of nearly 5,000 families about 10,000 weighings and the same number of measurements of height had been recorded for approximately 5,400 children. Of the 10,000 measurements transcribed, approximately 3,200 were made in the school year 1932–33, 2,800 were made in 1931–32, 2,100 in 1930–31, 1,100 in 1929–30, and 800 in 1928–29. The measurements were nearly equally divided between the sexes, and the age range included the sixth through the fourteenth year.

The method of analyzing the data, which was alike for both height and weight, is, briefly, as follows: The first step in the analysis (of weight) consisted in the calculation of the average weight of children of given age and sex regardless of the year in which the measurement was made and regardless of the economic status of the families from which the children came. In this way an average, or standard, weight was calculated for each age and sex class. Let this type of average be designated A. The next step consisted in subdividing each age-sex class of children into subclasses *according to the year in which the measurement was taken and according to the economic history of the family*. Average weight then was calculated for children of each age in each of these subclasses. This type of average is designated B. Ratios of the form $\frac{100\ B}{A}$ were then calculated.

An example will make the foregoing clear. Consider the B average first. In the total series of measurements the weights of 749 seven-year old boys were copied from the school records. Of this total of 749 individuals, 205 were for boys 7 years of age in 1932–33, 160 were for boys 7 years of age in 1931-32, 151 were for boys of that age in 1930–31, 136 for 7-year old boys in 1929–30, while 97 were for 7-year olds in 1928–29. Each of these 5 groups of 7-year old boys was separated according to the 3 classes of economic history, (1) those whose families remained comfortable throughout the 5-year period, (2) those whose families remained poor, and (3) those whose

families were comfortable in 1929 and who by 1933 had become poor. The next step consisted in the calculation of the average weight of the boys in each of the 15 subclasses and, as well, the average weight (A) of all 749 boys. For example, there were 37 boys 7 years of age in 1932–33 who came from families which remained poor during the interval from 1928–33. The average weight (B) of these 37 boys was 47.78 pounds; the average weight (A) of all 749 boys equaled 48.92 pounds. The *relative weight* of the 7-year old boys in 1932–33 who came from families poor throughout the entire period equals, therefore, 47.78/48.92 or 97 percent. In this way 15 ratios, or relative weights, were determined for each of the separate age-sex subclasses, that is, for each age-sex group there was calculated a relative weight to represent each of the 3 economic classes for each of the 5 school years.

When the weights of children in the different time-history subclasses are thus expressed as ratios or relative weights it becomes feasible, for practical purposes, to combine or average the ratios for various age-sex classes, *specific for economic status and year of measurement*. The final step in the analysis consisted, therefore, in summarizing the data for each economic class of each school year by calculating the weighted average of the relative weights for the two sexes for broad age groups.

Again, a specific example will indicate the kind of result obtained. Thus, 777 boys and girls from 6 through 9 years of age who were weighed in 1932–33, and who were from families that remained poor throughout the period 1929–33, are represented by the single average relative weight, 99.1 percent; 284 boys and girls 6 through 9 years of age measured in 1932–33, who were from families that remained comfortable throughout, are represented by the figure 104.4 percent, and 780 boys and girls 6 through 9 years of age in the same year who were from families that were comfortable in 1929 but who became poor by 1932 are represented by 99.6 percent.

In reporting the results of the analysis it may be stated at the outset that only those data which showed positive results will be given. Accordingly, table 1 and figure 1 give the results of the study of body weight for the two sexes combined for the age group 6 through 9 years. For this group of children a definite relationship between *change* in economic status and body weight was found. No relationships pertinent to the present discussion were found for the weights of children 10 years and above nor for the heights of children at any of the ages studied, and it is considered unnecessary at this time to report the results of the analysis.

It was shown that persons who were found to have a lead line had a much greater incidence of gingivitis and pyorrhea but lower D. M. F. rates than all workers in these industries. It is suggested that the generally more favorable dental experience of coal mine workers 15–34 years of age may be partially due to the circumstance that they presumably have not been exposed to lead, while certain metal mine and smelter workers have had lead exposures.

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REPORT ON MARKET-MILK SUPPLIES OF STANDARD MILK ORDINANCE COMMUNITIES[1]

Compliance of the Market-Milk Supplies of Certain Standard Milk Ordinance Communities With the Grade A Pasteurized and Grade A Raw Milk Requirements of the Public Health Service Milk Ordinance and Code, as Shown by Compliance (Not Safety) Ratings of 90 Percent or More Reported by the State Milk-Sanitation Authorities During the Period January 1, 1940, to December 31, 1941

The accompanying list gives the semiannual revision of the list of certain Standard Milk Ordinance communities in which the pasteurized market milk is both produced and pasteurized in accordance with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code and in which the raw market milk sold to the final consumer is produced in accordance with the Grade A raw milk requirements of said ordinance and code, as shown by ratings of 90 percent or more reported by State milk-sanitation authorities.

These ratings are not a complete measure of safety, but represent the degree of compliance with the Grade A requirements of the Public

[1] From the States Relations Division.

Health Service Milk Ordinance and Code. Safety estimates should also take into account the percentage of milk pasteurized, which is given in the following tables.

The milk ordinance recommended by the Public Health Service is now in effect in hundreds of communities ranging in population from 1,000 to 3,500,000 and located in 35 States.

The primary reason for publishing the rating lists from time to time is to encourage these communities to attain and maintain a high level of excellence in the enforcement of this ordinance. No comparison with communities operating under other milk ordinances is intended or implied.

It is emphasized that the Public Health Service does not intend to imply that only those communities on the list are provided with high-grade milk supplies. Some communities which have high-grade milk supplies are not included, because arrangements have not been made for the determination of their ratings by the State milk-sanitation authority. In other cases the ratings which have been determined are now more than 2 years old and have therefore lapsed. In still other communities with high-grade milk supplies there seems, in the opinion of the community, to be no local necessity nor desire for rating or inclusion in the list, nor any reasonable local benefit to be derived therefrom.

The rules under which a community is included in this list are as follows:

(1) All ratings must have been determined by the State milk-sanitation authority in accordance with the Public Health Service rating method (Pub. Health Rep., **53:** 1386 (1938). Reprint No. 1970), based upon the Grade A pasteurized milk and the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code.

(2) No community will be included in the list unless both its pasteurized milk and its raw milk ratings are 90 percent or more. Communities in which only raw milk is sold will be included if the raw milk ratings are 90 percent or more. Communities which receive, without local inspection, milk from other sheds will be included in the list only if the locally inspected supply, as well as the shipped-in supply, shows a rating of 90 percent or more.

(3) The rating used will be the latest rating submitted to the Public Health Service, but no rating will be used which is more than 2 years old. In order to promote continuous rigid enforcement rather than occasional "clean-up campaigns" it is suggested that when the rating of a community on the list falls below 90 percent no resurvey be made for at least 6 months, resulting in removal from the next semiannual list.

shown that the incidence of illness is highest in families of the depression poor. The present study now indicates that the growth in weight of children 6 through 9 years of age from these families has been slightly but definitely reduced as compared with the growth of children of these ages in the group as a whole. Thus, while some workers have accepted such views as certain on *a priori* grounds, these studies now give quantitative evidence that, so far as the wage-earning class in the large urban centers is concerned, it is the children from families whose economic status has markedly *changed* that have been influenced by the depression.

SUMMARY

This study deals with the relative change in height and weight, during 1929 to 1933, of urban children from (1) families that remained in comfortable economic circumstances during the entire period, (2) families that remained poor, and (3) families that were comfortable in 1929 but who had become poor by 1933. It is shown that young children from families that had become poor, failed by approximately 2 percent to attain the weight of children in the group as a whole. The conclusion is drawn, so far as growth in weight of this sample of children from urban wage-earning families is concerned, that it is children from families *whose income has fallen to a low level* who have been affected by the economic depression.

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A SURVEY OF TUBERCULOSIS IN LOUISIANA

A report on a survey of tuberculosis in Louisiana has recently been published by the Public Health Service.[1] The survey comprised (1) the collection and collation of mortality and morbidity statistics from the records of the State and of the local (city and parish) official health agencies, and of the National, the State, and the local tuberculosis associations, and of the United States Census Bureau; (2) the detailed inspection of parishes in different parts of the State to compare local conditions thought likely to influence the incidence of tuberculosis; (3) visits to hospitals and other institutions in Louisiana engaged in whole or in part in the care and treatment of persons afflicted with tuberculosis; (4) interviews with State and local health officials and their assistants, with officers of National, State, and local tuberculosis and public health associations and with numerous other persons especially interested in the problem; and (5) a considerable study of available literature on the general epidemiological features of tuberculosis in Louisiana and elsewhere.

The report presents by text, tables, charts, and maps detailed data regarding the area, topography and character of land, the climate, the population, the resources and industries, the general health, and the incidence of tuberculosis in the State. The hospitals and other institutions in the State which are engaged in whole or in part in the care and treatment of patients with tuberculosis are described, and the State and local agencies engaged in work for the prevention or control of tuberculosis are discussed. The standing of Louisiana in tuberculosis mortality is compared with that of the other States in the United States registration area. The distribution of tuberculosis mortality in Louisiana by age, sex, race, and geographical regions is presented in detail.

Among the findings were the following:

1. Less than 25 percent of the cases of active tuberculosis in Louisiana are diagnosed and officially reported and, therefore, the mortality records furnish the most reliable means now available for the determination of the incidence of the disease in this State.

2 When the death rates for whites and Negroes are considered separately, the tuberculosis situation in Louisiana compares favorably, both in prevalence and in decrease in rate in recent years, with that of a majority of the other States.

[1] A survey of tuberculosis in Louisiana. By L. L. Lumsden. Pub. Health Bull. No. 219. Government Printing Office, Washington, 1935.

3. In Louisiana the tuberculosis death rate among the Negroes is nearly three times that among the white and, for the total population over 20 years of age, is much higher among the Negro males than among the Negro females and among the white males than among the white females.

4. In Louisiana the tuberculosis death rate in the urban population is much higher than that in the rural population.

5. There is in this State a regional distribution of tuberculosis mortality which is not satisfactorily explicable by our present knowledge of the epidemiology of the disease.

The following are among the conclusions reached:

1. Poverty and crowding appear to be associated in a causal relationship with high tuberculosis incidence in Louisiana, but these factors alone do not account for the regional and the age-sex-race distributions of the disease.

2. In view of some of the phases of the general tuberculosis situation which Louisiana was found to exemplify in a striking manner, there is need for much research work to bring to a practical basis our knowledge of the causation, of the modes of spread, of the care and treatment, and of the measures for the prevention of tuberculosis.

3. The institutional provisions for the care and treatment of patients and the agencies engaged in carrying out specific measures for the prevention of tuberculosis are far from adequate—and much less nearly adequate than in a number of other States in which, however, the decline in the tuberculosis death rate in the last 15 or 20 years has been no greater than that in Louisiana.

4. Among the measures which should be carried out in Louisiana for the prevention of tuberculosis and for the care and treatment of persons afflicted with the disease are, in order of importance (*a*) the augmentation of existing whole-time parish and city health units, or departments, and the establishment of additional units, all to be organized on a basis of thorough efficiency and to be sufficiently financed to enable them to carry out in every parish provided with their service a reasonably adequate program of general health service, including in due proportion specific justifiable measures for the control of tuberculous infection; (*b*) the establishment in the State board of health of a tuberculosis field service for diagnostic and educational work; and (*c*) augmentation and reorganization of existing provisions for institutional care and treatment of patients with tuberculosis.

It is believed that this report will prove of especial interest to administrative health officials, to antituberculosis agencies, and to students of epidemiology.

COURT DECISION ON PUBLIC HEALTH

Refusal of city health department to grant permit to sell and distribute milk and milk products in city set aside.—(New Jersey Supreme Court; *Sheffield Farms Co., Inc.,* v. *Seaman, Director of Finance, et al.,* 177 A. 372; decided Feb. 23, 1935.) The plaintiff company applied to the health authorities of the city of Perth Amboy for a permit to sell and distribute its milk and milk products in the said city. The company held a license from the State health department authorizing it to sell and distribute milk in the State. Notwithstanding the fact that the company had done all that it was obliged to do under the State and local laws and regulations, it was refused a permit on the following grounds:

(1) That there is already an adequate supply of milk in the city of Perth Amboy for its inhabitants; (2) that the health bureau has the control and regulation of the milk supply well in hand and the assumption by it of any additional burden would embarrass the carrying out of the present system of regulation and control; (3) that the health bureau has a limited budget and it has not sufficient moneys on hand with which to inspect additional sources of supply at distant points; (4) that the health inspectors of the bureau of health have as much work to do as is physically possible for them to undertake; that, if they are required to inspect any additional sources of supply, it will hamper them in adequately checking and keeping under control the present source of supply; (5) that the people would not be benefited by any additional supply of milk at a price fixed by the milk control board of the State of New Jersey; (6) that the granting of a license to the applicant would bring about a surplus supply of milk, which may prove a menace to health and a nuisance to the public; (7) the business of distributing and selling milk is a privilege by reason of the nature of the product and not a right.

In a proceeding to review the city health department's action, the company contended substantially "that to sell milk is a property right which is not to be denied it in an arbitrary manner; and that the denial was arbitrary, unjust, and a denial of its constitutional rights to engage in that business; and that the refusal to grant the permit is also a denial of the equal protection of the laws guaranteed it under the Federal Constitution."

The supreme court said that in *Nebbia* v. *New York,* decided by the United States Supreme Court, it was held that the milk business was affected with a public interest and was subject to regulation. "That regulation, however," said the court, "still has to be reasonable; it must not be arbitrary, capricious, or discriminatory. And that reasonableness, and hence the validity of a business, depends on the facts."

As to the contention that the refusal was based on a sound discretion lodged in those possessing the power to grant the permit, the court said that this was not so. "There is no such discretion in the granting power in the premises. Moreover, even if such an unrea-

sonable, arbitrary, and capricious discretion were delegated or vested in the granting power, it would be illegal."

Respecting the points that the permit was refused in order to conserve public health and safety and that the city was without funds to inspect and supervise the sources of the company's milk supply, it was said:

Here, again, the argument finds no support in the record of the stipulated facts. Respondents concede that they have no knowledge respecting the quality of prosecutor's milk and milk products, or the sanitary condition under which its milk is produced, handled, or marketed. It clearly could not, therefore, form a judgment of refusal to grant the permit on unknown or undetermined facts. Nor does the mere lack of funds to investigate the facts justify the refusal. The legislature has provided for such a contingency. * * *

The court closed its opinion with the following language:

It will serve no useful purpose to answer or further discuss the purported reason argued upon which the refusal is sought to be justified. Suffice it to say that the meager facts, relevant as to the occasion and history of the refusal, lead us to the conclusion that they are without substance. They are excuses rather than legal reasons. The city just took the position that it had enough milk dealers and that it had the situation "well in hand." Such a position is unreasonable; it is arbitrary, capricious, and discriminatory. It unlawfully curtails prosecutor's common-law right to engage in a lawful business, notwithstanding that it has fully complied with the requirements of the State and city. This the city cannot lawfully do.

The refusal is set aside, with costs.

DEATHS DURING WEEK ENDED JULY 27, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended July 27, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,288	8,852
Deaths per 1,000 population, annual basis	10.2	12.3
Deaths under 1 year of age	478	590
Deaths under 1 year of age per 1,000 estimated live births	44	55
Deaths per 1,000 population, annual basis, first 30 weeks of year	11.9	11.9
Data from industrial insurance companies:		
Policies in force	67,492,296	67,640,101
Number of death claims	12,671	12,398
Death claims per 1,000 policies in force, annual rate	9.7	9.6
Death claims per 1,000 policies, first 30 weeks of year, annual rate	10.2	10.4

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended Aug. 3, 1935, and Aug. 4, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 3, 1935, and Aug. 4, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934
New England States:								
Maine	1				51	3	0	0
New Hampshire					1	21	0	0
Vermont		1			20	7	0	0
Massachusetts	10	3			65	46	3	0
Rhode Island	2				22	10	1	1
Connecticut	2	2	1		35	32	1	0
Middle Atlantic States:								
New York	22	24	[1] 1	[1] 2	395	174	12	2
New Jersey	12	5	1	2	102	59	4	0
Pennsylvania [2]	18	33			132	535	4	5
East North Central States:								
Ohio	16	13	3	1	79	46	4	1
Indiana	14	12	17	14	10	23	8	0
Illinois	31	20	5	2	89	138	10	9
Michigan	6	2	2		199	47	1	1
Wisconsin	2	2	23	11	440	176	1	0
West North Central States:								
Minnesota	1	3	2		18	27	2	0
Iowa	2	2	2		8	10	1	0
Missouri	11	10	27	3	30	14	4	1
North Dakota	8	12			2	19	0	1
South Dakota	1				5	13	0	0
Nebraska	1	13			21	9	0	0
Kansas	5	4	2		16	15	3	0
South Atlantic States:								
Delaware	1				8		0	0
Maryland [2,3,4]	1	3	1	48	16	29	3	0
District of Columbia	8	5			3	3	5	0
Virginia [2,4]	12	5			21	56	2	1
West Virginia	8	5	42	53	11	31	2	1
North Carolina [4]	15	14		1	4	47	8	1
South Carolina	3	4	45	70	3	15	1	0
Georgia [4]	6	8					0	1
Florida	4	7				25	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 3, 1935, and Aug. 4, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934
East South Central States:								
Kentucky	3	23			23	50	1	3
Tennessee	10	7	4	13	13	21	1	2
Alabama [4]	13	19	2	3	1	59	0	0
Mississippi [3]	10	6					1	1
West South Central States:								
Arkansas	7	2	5	1	9		2	0
Louisiana	17	6	18	2	4	10	1	0
Oklahoma [5]	8	3	10				1	0
Texas [4]	31	47	14	22	19	50	0	1
Mountain States:								
Montana [3]	4			4	17	10	0	0
Idaho							0	0
Wyoming [3]					7		0	0
Colorado	9	4			104	48	0	2
New Mexico	1	3		1		10	0	1
Arizona	1		1	1	1	1	0	0
Utah [3]						4	0	0
Pacific States:								
Washington		1			27	18	1	0
Oregon	2		11	7	47	7	2	0
California	14	24	9	17	148	86	1	2
Total	348	357	248	278	2, 226	2, 004	81	87
First 31 weeks of year	17, 317	19, 630	103, 499	47, 696	693, 097	665, 401	4, 027	1, 537

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug 3, 1935	Week ended Aug 4, 1934	Week ended Aug 3, 1935	Week ended Aug 4, 1934	Week ended Aug 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934
New England States:								
Maine	2	1	3	7	0	0	4	3
New Hampshire	0	0	2	6	0	0	0	0
Vermont	0	2	5	6	0	0	0	0
Massachusetts	47	5	35	51	0	0	5	3
Rhode Island	7	0	3	1	0	0	0	0
Connecticut	10	1	8	4	0	0	0	3
Middle Atlantic States:								
New York	104	6	78	97	0	0	11	10
New Jersey	7	1	14	23	0	0	2	7
Pennsylvania [3]	2	7	75	128	0	0	13	29
East North Central States:								
Ohio	1	3	54	59	0	0	31	54
Indiana	0	2	14	16	0	0	25	13
Illinois	10	10	95	70	0	0	52	51
Michigan	10	8	56	60	0	0	19	6
Wisconsin	0	2	87	44	6	3	0	9
West North Central States:								
Minnesota	1	6	34	14	1	0	27	2
Iowa	0	0	14	8	3	0	2	26
Missouri	2	0	16	9	0	2	34	59
North Dakota	0	0	4	4	0	0	2	2
South Dakota	0	1	5	2	6	1	0	2
Nebraska	0	0	4	9	3	2	1	4
Kansas	0	2	23	17	0	0	20	22
South Atlantic States:								
Delaware	0	0	1		0	0	2	1
Maryland [2,3,4]	10	2	13	12	0	0	14	13
District of Columbia	7	1	4	3	0	0	3	2
Virginia [3,4]	100	3	14	18	0	0	38	36
West Virginia	0	1	18	21	0	0	31	32
North Carolina [4]	40	3	20	16	0	0	40	44
South Carolina	1	0	1		0	0	31	38
Georgia [4]	1	1	4	1	0	0	36	44
Florida	0	0		2	0	0	21	5

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 3, 1935, and Aug. 4, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934	Week ended Aug. 3, 1935	Week ended Aug. 4, 1934
East South Central States:								
Kentucky	18	4	16	23	0	0	55	80
Tennessee	10	3	16	16	0	0	55	71
Alabama [4]	1	5	9	10	0	0	12	65
Mississippi [3]	1	0	5	11	0	0	18	20
West South Central States:								
Arkansas	1	0	8	1	0	0	42	21
Louisiana	2	2	7	9	0	0	24	19
Oklahoma [5]	0	0	8	6	0	1	44	57
Texas [4]	3	6	17	38	0	9	70	95
Mountain States:								
Montana [2]	0	10	2	3	2	0	2	4
Idaho	0	17	2	1	3	0	0	1
Wyoming [2]	0	0	5	3	2	0	1	0
Colorado	1	1	22	20	0	0	4	1
New Mexico	0	1	3	3	0	0	14	11
Arizona	0	5	2	-------	0	0	4	2
Utah [3]	0	1	9	2	0	0	0	1
Pacific States:								
Washington	0	41	10	9	6	4	2	5
Oregon	0	1	10	18	2	0	1	0
California	19	85	50	66	2	0	10	8
Total	418	250	905	947	36	22	822	981
First 31 weeks of year	2,315	3,430	178,553	146,358	5,257	3,708	7,787	9,236

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended Aug. 3, 1935, 19 cases, as follows: Pennsylvania, 1; Maryland, 7; Virginia, 3; Montana, 6; Wyoming, 2.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended Aug. 3, 1935, 40 cases, as follows: Maryland, 1; Virginia, 2; North Carolina, 2; Georgia, 16; Alabama, 9; Texas, 10.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
June 1935										
California	22	136	117	4	4,534	16	90	698	50	41
Mississippi	3	18	563	7,801	130	693	3	27	2	49
North Dakota	3	6	11	-------	97	-------	0	129	2	4
Virginia	38	32	150	13	1,171	36	52	91	0	59

June 1935

	Cases
Actinomycosis:	
California	2
Chicken pox:	
California	2,689
North Dakota	89
Virginia	232
Dysentery:	
California (amoebic)	15
California (bacillary)	14
Mississippi (amoebic)	117
Mississippi (bacillary)	1,616
Virginia (bacillary and diarrhea)	800

June 1935—Continued

	Cases
Epidemic encephalitis:	
California	2
North Dakota	1
Food poisoning:	
California	173
German measles:	
California	2,410
Granuloma, coccidioidal:	
California	2
Hookworm disease:	
California	6
Mississippi	378

June 1935—Continued

	Cases
Leprosy:	
California	2
Mumps:	
California	945
Mississippi	551
North Dakota	3
Virginia	301
Ophthalmia neonatorum:	
California	1
Paratyphoid fever:	
California	4
North Dakota	2
Virginia	2

June 1935—Continued

Disease and State	Cases
Puerperal septicemia	
Mississippi	18
Rabies in animals	
California	91
Mississippi	7
Relapsing fever	
California	1
Rocky Mountain spotted fever	
California	5
North Dakota	1
Virginia	5
Septic sore throat	
California	42
Virginia	10
Tetanus	
California	7
Trachoma	
California	5
Mississippi	7
Virginia	6
Trichinosis	
California	2
Tularaemia	
California	3
Virginia	4
Typhus fever	
Virginia	1
Undulant fever:	
California	18
North Dakota	1
Virginia	7
Vincent's infection.	
North Dakota	8
Whooping cough.	
California	646
Mississippi	865
North Dakota	64
Virginia	454

MENINGO-ENCEPHALITIS IN WINDBER, PA.

According to a report dated August 5, 1935, about 100 cases of meningo-encephalitis, with 1 death, chiefly in children and young adults, had been reported in a population of about 10,000 in Windber, Pa., since July 21. The cases were with few exceptions mild, with transient headache, fever, and increased cell count in the spinal fluid when lumbar puncture was performed. Only 19 patients had been hospitalized. In 13 families there were 2 cases each, with onsets in most instances either on the same day or a day apart. There were no cases of poliomyelitis in the community. The disease was said not to resemble the St. Louis outbreak of encephalitis in age distribution, cerebral symptoms, or severity Similar cases, fewer in number, were reported to have occurred in other neighboring localities in southwestern Pennsylvania. No association with water, milk, or ice cream supply, or with insects, was made out.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 27, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table Weekly reports are received from about 700 cities from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine											
Portland	0	-	0	1	0	0	0	1	0	0	22
New Hampshire											
Concord	0	-	0	0	0	0	0	0	0	0	10
Manchester	0		0	0	0	1	0	2	0	0	13
Nashua	0			0		0	0	--	0	0	-------
Vermont											
Barre	0		0	10	0	0	0	4	0	1	5
Burlington	0	--	0	0	0	0	0	0	0	0	11
Rutland	0	--	0	1	0	2	0	0	0	0	5
Massachusetts											
Boston	2	---	1	22	15	8	0	21	1	15	188
Fall River	1	----	0	1	2	2	0	3	0	2	26
Springfield	0		0	5	1	1	0	1	1	0	25
Worcester	0	-----	0	1	0	5	0	1	0	2	31
Rhode Island											
Pawtucket	1	-----	0	0	0	0	0	0	0	0	16
Providence	3	--	0	47	0	1	0	1	0	8	45
Connecticut											
Bridgeport	0	----	0	5	2	4	0	0	1	2	27
Hartford	1	----	0	0	0	1	0	0	0	7	37
New Haven	0	-----	0	0	0	0	0	2	0	2	24
New York											
Buffalo	0	-----	0	6	12	14	0	7	0	24	117
New York	7	-----	3	239	57	26	0	91	4	156	1,273
Rochester	0	-----	0	1	1	4	0	0	1	10	63
Syracuse	0	-----	0	101	0	2	0	1	0	44	28

City reports for week ended July 27, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
New Jersey											
Camden	0		0	1	0	0	0	0	0	0	14
Newark	0	1	0	13	4	6	0	8	0	41	91
Trenton	0		0	0	3	2	0	1	0	0	30
Pennsylvania											
Philadelphia	2	2	1	28	13	8	0	24	4	60	307
Pittsburgh	0		0	9	10	9	0	4	1	26	128
Reading	0		0	5	0	4	0	0	0	2	15
Scranton	0			0		0	0		0	3	
Ohio											
Cincinnati	1		1	1	5	4	0	13	0	3	120
Cleveland	2	4	0	58	5	10	0	15	2	88	166
Columbus	2		0	13	1	2	0	1	0	6	76
Toledo	1		0	1	3	0	0	3	4	8	72
Indiana											
Anderson	0		0	0	0	0	0	0	0	12	7
Fort Wayne	1		0	0	0	1	0	1	0	8	16
Indianapolis	0		0	2	7	4	0	1	1	11	100
South Bend	0		0	0	1	2	0	0	0	3	17
Terre Haute	1		0	0	0	0	0	0	0	0	16
Illinois											
Alton	0		0	0	1	5	0	0	1	0	7
Chicago	11	1	0	84	28	58	0	41	3	136	600
Elgin	0		0	0	0	2	0	0	0	7	9
Moline	0		0	1	0	0	0	0	0	2	7
Springfield	0	1	0	0	1	2	0	0	0	13	22
Michigan											
Detroit	1	2	0	20	10	16	0	16	1	174	226
Flint	1		0	1	0	3	0	0	0	12	26
Grand Rapids	0		0	11	0	2	0	0	0	33	33
Wisconsin											
Kenosha	0		0	2	1	1	0	0	0	6	5
Milwaukee	1		0	94	1	10	0	5	0	63	87
Racine	0		0	10	0	2	0	1	0	10	9
Superior	0		0	0	0	0	0	0	0	2	16
Minnesota											
Duluth	0		0	0	2	1	0	0	0	1	22
Minneapolis	0		0	8	4	12	0	2	17	0	96
St. Paul											
Iowa											
Cedar Rapids	0			0		0	0		0	3	
Davenport	0			0		4	0		0	0	
Des Moines	0			1		0	0		0	0	37
Sioux City	0		0	1	0	0	1	0	0	4	
Waterloo	0			1		1	0		1	2	
Missouri											
Kansas City	2		0	0	3	1	0	5	1	7	89
St. Joseph	0		0	0	3	0	0	4	0	1	31
St. Louis	4		0	1	1	2	0	8	3	6	181
North Dakota											
Fargo	0		0	0	1	0	0	0	2	0	8
Grand Forks	0			0		0	0		0	0	
Minot	0			0		0	0		0	1	8
South Dakota											
Aberdeen	0			3		0	0		0	1	
Nebraska											
Omaha	0		0	0	3	4	0	7	0	2	55
Kansas											
Lawrence	0			0		0	0		0	0	5
Topeka											
Wichita	1		0	0	1	0	0	1	0	2	14
Delaware											
Wilmington	2		0	0	0	1	0	0	0	0	24
Maryland											
Baltimore	1		1	3	5	11	0	11	2	25	193
Cumberland	0		0	0	0	1	0	0	0	0	14
Frederick	0		0	0	0	0	0	0	0	0	3
District of Columbia											
Washington	11		1	5	2	3	0	4	6		146
Virginia											
Lynchburg	0		0	0	1	1	0	0	1	20	7
Norfolk	0		0	0	0	0	0	5	8	0	26
Richmond	0		0	1	3	1	0	1	1	1	50
Roanoke	0		0	0	0	1	0	0	0	0	13
West Virginia											
Charleston	2		0	0	0	0	0	2	1	2	26
Huntington	0			0		0	0	4	0	0	
Wheeling	0		0	1	1	0	0	0	2	1	17

City reports for week ended July 27, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
North Carolina											
Gastonia	0		0	0	0	0	0	0	0	1	8
Raleigh											------
Wilmington	0		0	0	1	0	0	0	0	0	5
Winston-Salem	1		0	0	2	1	0	0	1	2	14
South Carolina											
Charleston	0	1	0	0	2	1	0	3	0	2	14
Columbia	0		0	0	0	0	0	0	0	0	1
Florence	0		0	0	0	0	0	0	0	0	9
Greenville	0		0	0	0	1	0	0	3	0	5
Georgia											
Atlanta	5	2	0	0	3	2	0	4	0	7	83
Brunswick	1		0	0	0	0	0	0	0	0	3
Savannah	0	1	0	3	2	0	0	1	2	8	26
Florida											
Miami	1		0	0	1	0	0	2	1	0	27
Tampa	0		0	0	1	0	0	1	0	0	16
Kentucky											
Ashland											--- -
Covington	0		0	0	1	0	0	1	0	0	
Lexington	0		0	0	0	0	0	2	1	0	22
Tennessee											
Knoxville	1		0	0	1	1	0	2	1	0	26
Memphis	0		0	0	4	3	0	6	5	4	84
Nashville	0		1	0	0	0	0	4	0	5	51
Alabama											
Birmingham	1		1	0	1	3	0	2	2	5	56
Mobile	0		0	0	1	1	0	0	0	0	21
Montgomery	1			0	0	0	0		1	0	---
Arkansas											
Fort Smith	0			0		0	0		1	1	-------
Little Rock	0			0	1	1	0	4	0	0	---- --
Louisiana											
Lake Charles	0		0	0	0	0	0	0	1	0	11
New Orleans	7		0	3	1	3	0	9	3	2	120
Shreveport	0		0	0	5	0	0	2	0	0	31
Texas											
Dallas	0		0	0	0	1	0	0	0	7	60
Fort Worth	0		0		1	2	0	3	0	4	33
Galveston	2		0	0	1	0	0	2	1	0	13
Houston	4		0	1	8	2	0	15	1	0	76
San Antonio	3		1	0	2	1	0	11	0	0	69
Montana											
Billings	4		0	0	1	0	0	1	0	0	11
Great Falls	0	-	0	0	0	0	0	0	0	5	7
Helena	0		0	0	0	0	0	0	0	2	3
Missoula	0		0	0	0	0	0	0	0	0	6
Idaho											
Boise --	0	-	0	1	1	0	0	0	0	1	5
Colorado											
Colorado Springs	1		0	1	1	1	0	3	0	3	9
Denver	8		0	7	7	11	0	2	0	4	79
Pueblo	0		0	0	0	0	0	0	0	2	10
New Mexico											
Albuquerque	0		0	0	0	1	0	3	1	0	8
Utah											
Salt Lake City	0		0	4	1	11	0	2	0	28	26
Nevada											
Reno	0	2	0	0	0	0	0	0	0	0	2
Washington											
Seattle	0	-	3	23	3	3	0	5	1	0	81
Spokane	0		0	4	0	0	0	0	0	1	23
Tacoma	0		0	0	1	1	0	2	0	1	28
Oregon											
Portland	0		0	7	0	4	1	3	0	2	78
Salem	0			1		1	0		0	2	----- -
California											
Los Angeles	6	13	1	41	8	26	0	21	0	16	309
Sacramento	0	1	1	7	0	4	0	0	1	0	21
San Francisco	0		0	45	5	6	0	9	1	14	125

City reports for week ended July 27, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				District of Columbia:			
Boston	3	1	6	Washington	4	2	6
Fall River	0	0	2	Virginia:			
Springfield	0	0	1	Lynchburg	1	0	1
Connecticut:				Norfolk	0	0	3
Hartford	0	0	1	Richmond	0	0	8
New York:				Roanoke	0	0	5
New York	11	4	31	Tennessee:			
Pennsylvania:				Memphis	0	0	1
Philadelphia	0	1	2	Nashville	1	0	0
Pittsburgh	1	1	0	Alabama:			
Ohio:				Birmingham	1	0	0
Columbus	0	1	0	Montgomery	0	0	2
Toledo	1	0	0	Arkansas:			
Indiana:				Little Rock	1	1	0
Indianapolis	2	0	0	Louisiana:			
Illinois:				New Orleans	1	0	0
Chicago	4	0	2	Shreveport	0	1	0
Michigan:				Colorado:			
Detroit	1	0	4	Denver	1	0	0
Iowa:				California:			
Des Moines	1	0	0	Los Angeles	0	0	2
Delaware:				Sacramento	2	1	1
Wilmington	1	1	0	San Francisco	0	0	1
Maryland:							
Baltimore	6	1	1				

Epidemic encephalitis.—Cases: Philadelphia, 1; Chicago, 1; Detroit, 1; Baltimore, 1; Washington, 1; Sacramento, 1.

Pellagra.—Cases: Boston, 1; Gastonia, 2; Atlanta, 2; Savannah, 7; New Orleans, 4; Houston, 1; Los Angeles, 1; San Francisco, 1.

Typhus fever.—Cases: Charleston, S. C., 1; Savannah, 3; Miami, 1; Montgomery, 1; Fort Worth, 1; Houston, 1

FOREIGN AND INSULAR

PANAMA CANAL ZONE

Communicable diseases—April–June 1935.—During the months of April, May, and June 1935, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	April		May		June	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chicken pox	12		7		2	
Diphtheria	16		7	1	5	
Dysentery (amoebic)	22		24		31	
Dysentery (bacillary)			2	1	2	1
Leprosy	2				1	
Malaria	59	1	88	2	185	2
Measles	3		4		5	
Mumps					1	
Paratyphoid fever					1	
Pneumonia		15		9		14
Scarlet fever	1					
Tuberculosis		25		24		34
Typhoid fever	2	1	6	1	2	1
Typhus fever	1		2		1	
Whooping cough	42		30		39	1

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for July 26, 1935, pp. 967–983. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Aug. 30, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

Philippine Islands—Rizal Province—San Felipe Neri.—During the week ended August 3, 1935, 1 case of cholera was reported at San Felipe Neri, Rizal Province, P. I.

Plague

Argentina—Jujuy Province—Perico del Carmen.—During the month of July 1935, 1 case of plague with 1 death was reported at Perico del Carmen, Jujuy Province, Argentina.

Morocco—Mogador.—During the week ended July 27, 1935, 9 cases of plague with 3 deaths were reported in the interior region of Mogador, Morocco.

Yellow Fever

Bolivia.—Department of Santa Cruz—Chuchio.—During the month of June 1935, 1 case of yellow fever was reported at Chuchio, Department of Santa Cruz, Bolivia.

Dahomey—Porto Novo.—During the week ended July 20, 1935, 1 case of yellow fever with 1 death was reported in the vicinity of Porto Novo, Dahomey.

UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R. C WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 AUGUST 23, 1935 NO. 34

SICKNESS AMONG MALE INDUSTRIAL EMPLOYEES DURING THE FIRST THREE MONTHS OF 1935[1]

By DEAN K. BRUNDAGE, *Statistician, Office of Industrial Hygiene and Sanitation, United States Public Health Service*

The rate of occurrence of new cases of sickness and nonindustrial accidents causing disability for 8 consecutive days or longer among 157,662 male industrial employees was 8 percent higher in the first 3 months of 1935 than in the corresponding period of 1934. For these 2 years the experience of employees of the same group of companies, 33 in number, is under comparison. Although the rate was somewhat higher in 1935 than in the preceding year, it was 15 percent below the 5-year average for the first quarter. This period of the year is usually the worst from the standpoint of disease prevalence; hence the rate of 100.7 cases per 1,000 men recorded for the first 3 months of 1935 may be regarded as definitely favorable in comparison with rates of 113.4 and 112.4 for the *full years* 1928 and 1929, respectively, or even with 97.5 for the year 1932 as a whole.

The higher rate in the first quarter of 1935 as compared with the corresponding period of 1934 was principally due to an increase in the frequency of influenza. The incidence rate of this disease was 27.0 cases per 1,000 men per year, as compared with 17.7 in the first quarter of 1934, an increase of 52 percent. Pneumonia also was more frequent, the rate being 31 percent higher than in the same months of the preceding year. A relatively small increase, 16 percent, occurred in the frequency of 8-day and longer cases of tonsillitis and other diseases of the pharynx and tonsils. Bronchitis, pulmonary tuberculosis, and "other" respiratory diseases occurred at approximately the same rate as in the first quarter of 1934.

[1] The report for the fourth quarter and the entire year of 1934 was published in the PUBLIC HEALTH REPORTS for April 26, 1935, vol. 50, no. 17, pp. 557-559.

TABLE 1.—*Frequency of disability lasting 8 calendar days or longer in the first quarter of 1935, compared with the first quarter of preceding years. (Male morbidity experience of industrial companies which reported their cases to the United States Public Health Service)* [1]

Diseases and disease groups which caused disability. (Numbers in parentheses are disease title numbers from the International List of the Causes of Death, fourth revision, Paris, 1929)	Annual number of disabilities per 1,000 men in the first quarter of—		
	1935	1934	Five years, 1930–34
Sickness and nonindustrial injuries [2]	100.7	93.0	118.1
Nonindustrial injuries	10.2	11.8	11.2
Sickness [2]	90.5	81.2	106.9
Respiratory diseases	47.0	36.2	56.4
Bronchitis, acute and chronic (106)	4.5	4.7	5.6
Diseases of the pharynx and tonsils (115a)	5.1	4.4	6.4
Influenza, grippe (11)	27.0	17.7	34.1
Pneumonia, all forms (107–109)	3.8	2.9	3.5
Tuberculosis of the respiratory system (23)	1.0	.9	1.1
Other respiratory diseases (104, 105, 110–114)	5.6	5.6	5.7
Nonrespiratory diseases	43.5	45.0	50.5
Diseases of the stomach, cancer excepted (117–118)	3.5	3.4	4.0
Diarrhea and enteritis (120)	.9	.9	.9
Appendicitis (121)	3.7	4.1	3.8
Hernia (122a)	1.3	1.4	1.8
Other digestive diseases (115b, 116, 122b–129)	3.1	2.9	3.2
Rheumatic group, total	9.8	9.8	12.5
Rheumatism, acute and chronic (56, 57)	4.4	4.8	6.4
Diseases of the organs of locomotion (156b)	2.9	2.9	3.6
Neuralgia, neuritis, sciatica (87a)	2.5	2.1	2.5
Neurasthenia and the like (part of 87b)	.8	.4	1.1
Other diseases of the nervous system (78–85, part of 87b)	1.1	1.7	1.4
Diseases of the heart and arteries, and nephritis (90–99, 102, 130–132)	3.9	3.9	4.3
Other genito-urinary diseases (133–138)	2.4	2.6	2.8
Diseases of the skin (151–153)	2.3	2.3	2.7
Epidemic and endemic diseases except influenza (1–10, 12–18, 33, 37, 38, part of 39 and 44)	2.7	3.9	3.3
Ill-defined and unknown causes (200)	1.9	2.0	2.0
All other diseases (19–22, 24–32, 36, part of 39 and 44, 40–43, 45–55, 58–77, 88, 89, 100, 101, 103, 154–156a, 157, 162	6.1	5.7	7.2
Average number of males covered in the record	157,662	145,728	149,605
Number of companies included	33	33	36

[1] In 1934 and 1935 the same companies are included. The rates for the first quarter of the years 1930 to 1934 include 19 of these companies, which employed an average of 119,592 men during these months, or 80 percent of the 149,605 men representing the sample population for the 5 years.

[2] Exclusive of disability from the venereal diseases, and a few numerically unimportant causes of disability.

In the industrial population of the United States and Canada the influenza mortality rate was 66 percent higher in the January–March period of 1935 than in the same 3 months of 1934. The Metropolitan Life Insurance Co. reports: "The influenza death rate, despite its rise, is below the 5-year average for the winter season, and the increase has not been accompanied this year by higher pneumonia mortality."[2] As will be noted in table 1, the influenza morbidity rate was also below the 5-year average. Although no increase occurred in pneumonia mortality among the industrial policyholders of the Metropolitan Life Insurance Co., a definite rise in the frequency

[2] Statistical Bulletin, Metropolitan Life Insurance Company, vol. 16, no. 4, April 1935, p. 4.

of cases of this disease is shown from the records of industrial sick-benefit associations and company relief departments made available to the Public Health Service.

Nonrespiratory diseases as a whole occurred at a slightly lower rate than that of a year ago, and considerably below the 5-year average for the winter months. No marked decrease occurred in the incidence of any of the disease categories comprising the broad group of nonrespiratory diseases, with the exception of the epidemic and endemic diseases exclusive of influenza, which decreased about 30 percent from the level of a year ago; but in general the rates were slightly lower than those of 1934, and in certain instances a sizable decrease in frequency is revealed when comparison is made with the 5-year average, as for example, in disability due to diseases of the stomach, hernia, the rheumatic group, and diseases of the skin.

Nonrespiratory diseases showing unfavorable comparison with the rates for 1934 are neurasthenia, and neuralgia, neuritis, and sciatica.

As explained in earlier communications, the sickness rates presented are based on reports of cases causing disability for more than 1 week and for which sick benefits have been paid from funds provided either by the employing company, by its employees, or jointly by both. Venereal diseases and a few numerically unimportant causes of disability are not reported. The employees of the cooperating companies live in almost all parts of the United States, but most of them are located in the North Central, North Atlantic, and New England States.

A STUDY OF 450 FATAL CASES OF HEART DISEASE OCCURRING IN WASHINGTON (D. C.) HOSPITALS DURING 1932, WITH SPECIAL REFERENCE TO ETIOLOGY, RACE, AND SEX [1]

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During the past 20 years a number of analyses of heart disease have been made from different viewpoints and by studying various types of clinical and post-mortem cases. Practically all of these reviews have stressed the importance of etiology. Many of them have noted the difference in the kind of heart disease found in males and females. With the exception of Allen (*1*), in Cincinnati, and certain writers in the South, not enough attention has been paid to the striking contrasts in the etiological types of heart disease and the ages of death among the white and colored races.

Source and distribution of material.—Through the kind cooperation of every hospital in the District of Columbia, it was possible to review the clinical and necropsy records of the fatal cases of heart disease

[1] From the Office of Heart Disease Investigations.

occurring during 1932. Altogether, 516 case records were studied. Of these, 66 were discarded for lack of sufficient evidence, consisting, for the most part, of coroners' cases and other instances in which death occurred en route or within the first 24 hours. The fact that these cases are omitted should be taken into consideration in interpreting the results; for had they been included it is quite likely that the percentages of deaths from arteriosclerotic and hypertensive forms of heart disease and from the manifestations of syphilitic aortitis would have been increased and the proportion of deaths from other causes thereby reduced.

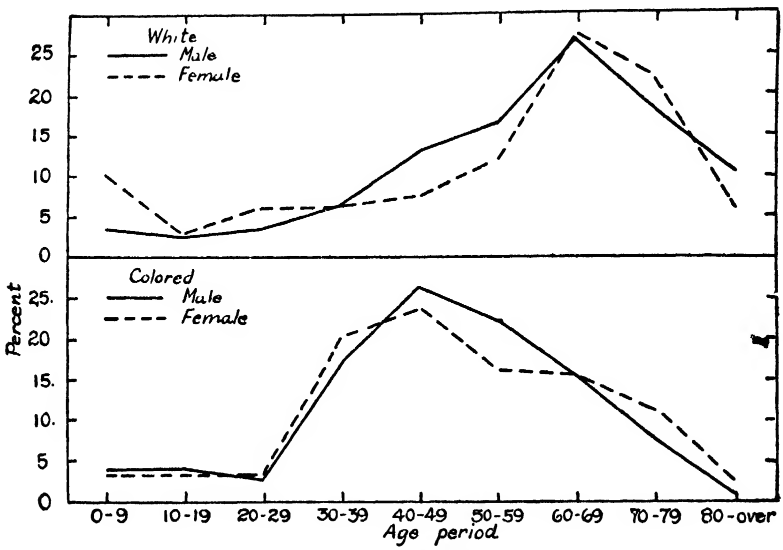

FIGURE 1.—Comparative age distribution of deaths, by race and sex, among 450 fatal cases of heart disease occurring in Washington (D. C.) hospitals during 1932.

Among the 450 fatal cases surveyed, 258 were in white and 192 in colored persons. In the white group there were 192 males and 66 females; in the colored group, 104 males and 88 females. The larger size of the white male group cannot be interpreted solely as being due to more fatal heart disease among white males. There are a number of hospitals in the District of Columbia whose clientele consists largely of white males, such as the Walter Reed General Hospital, the Naval Hospital, the Veterans' Administration Hospital, the hospital for the Soldiers' Home, and, to a less extent, St. Elizabeths Hospital, the Federal neuropsychiatric institution.

Ages at death.—The average age at death among the entire series was 52.3 years. Among the white group it was 55.5 years—57.1 years for the males and 52.5 for the females. The reason for the older

ages at death among the males than among the females is due to the inclusion of the fatal cases from the Soldiers' Home, and probably does not represent a true picture of the comparison between the ages at death for white males and females, since it is generally observed that males die at earlier periods than females. The average age at death among the colored hospitalized cardiac cases was 47.4 years—46.9 years for males and 49.0 for females. The colored group died at an average of nearly 8 years younger than the white. The reason for this will be made apparent when consideration is given the various etiological factors.

Not only does the average age at death but also the distribution of fatal cases vary with race and to a lesser degree with sex, as shown in figure 1 and table 1. The maximum number of fatal cases among both sexes of the white race occurs in the 60–69 year age period, while the peak number of fatal cases in the colored race, both sexes, occurs during the 40–49 year age period.

TABLE 1.—*Number and percentage of deaths in each age group and average age at death among 450 fatal cases of heart disease in Washington (D. C.) hospitals during 1932*

Age group (years)	White						Colored						Total	
	Males		Females		Total		Males		Females		Total			
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
0–9	7	3.6	7	10.6	14	5.4	4	3.8	3	3.4	7	3.6	21	4.6
10–19	5	2.6	2	3.0	7	2.7	4	3.8	3	3.4	7	3.6	14	3.1
20–29	6	3.1	4	6.1	10	3.8	3	2.9	3	3.4	6	3.1	16	3.7
30–39	13	6.7	4	6.1	17	6.6	18	17.3	18	20.4	36	18.7	53	11.7
40–49	25	13.0	5	7.6	30	11.5	27	26.1	21	23.9	48	25.0	78	17.7
50–59	32	16.7	8	12.1	40	15.5	23	22.1	14	15.9	37	19.3	77	17.7
60–69	50	26.1	18	27.3	68	26.4	16	15.3	14	15.9	30	15.6	98	21.7
70–79	34	17.7	14	21.2	48	18.8	8	7.7	10	11.4	18	9.4	66	13.7
80 and over	20	10.4	4	6.1	24	9.3	1	.9	2	2.3	3	1.6	27	6.2
Total	192	100	66	100	258	100	104	100	88	100	192	100	450	100
Average age at death		57.1		52.6		55.5		46.9		49.0		47.3		52.3

Among white males 28.1 percent of the deaths from heart disease occurred at 70 years or older, as compared with 27.3 percent among the females. On the other hand, only 8.6 percent of the colored males and 13.7 percent of colored females dying of heart disease lived to be 70 years of age. Among the white males 16.0 percent of these deaths occurred before 40 years of age, as compared with 25.8 percent among the white females. It will be shown later that this difference is due to the higher incidence of rheumatic heart disease among white females. This difference in incidence is not reflected to any great extent in the official mortality statistics, since deaths from rheumatic heart disease occurring during or shortly after attacks

of rheumatic fever are not usually tabulated under heart disease. In the colored group, 27.8 percent of the total deaths from heart disease in males occurred before 40 years of age, as compared with 30.6 percent in females. A considerable difference is noted between the white and colored groups in the distribution of deaths prior to 40 years of age. As shown in table 1, there is a much higher mortality among the colored groups during the 30–39-year age period than among the whites. This is due to the influence of syphilis of the aorta and heart and to the greater and earlier havoc wrought by the degenerative diseases, particularly hypertensive heart disease, among the colored population.

Etiological factors involved.—All of the more common and some of the rarer etiological types of heart disease are included in this series of 450 fatal cases of heart disease. As shown in figure 2 and table 2,

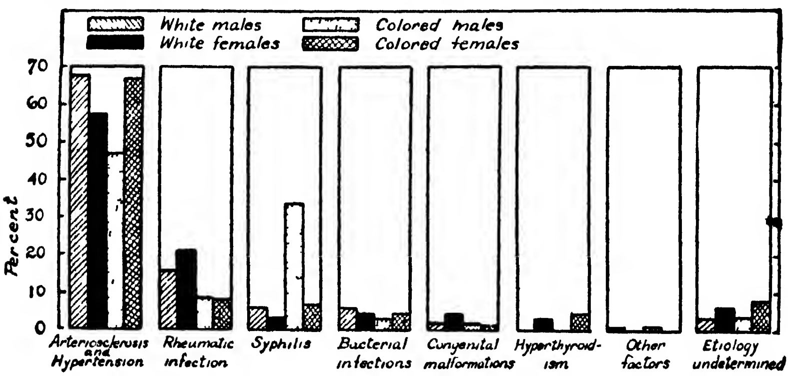

FIGURE 2. Percentage of total heart disease in each race and sex due to various etiological factors among 450 fatal cases of heart disease occurring in Washington (D. C.) hospitals during 1932. (Information obtained by review of clinical records.)

arteriosclerosis and hypertension, rheumatic infection, syphilis, bacterial endocarditis and pericarditis, congenital malformations, and hyperthyroidism were encountered as causes of heart disease in varying degrees of frequency among the races and sexes. Among the less frequent causes, pulmonary arteriosclerosis (cor pulmonale) and tuberculous pericarditis were noted. In other instances it appeared clear that the patient had succumbed to some form of heart disease to which no etiological agent could be attributed or in which it appeared that more than one etiological factor was involved. Not all of the known etiological types of heart disease were found. Trauma, scarlet fever, diphtheria, echinococcus disease, primary neoplasms of the heart, and even rarer conditions are known to exist, but were not met with in this group.

TABLE 2.—*Etiological factors concerned in 450 fatal cases of heart disease, by color and sex of decedents, in Washington (D.C.) hospitals during 1932. (From information obtained by study of clinical records.)*

Etiological factors	White						Colored						Total	
	Males		Females		Total		Males		Females		Total			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Arteriosclerosis and hypertension	130	67.7	38	57.6	168	65.1	49	47.1	59	67.0	108	56.3	276	61.4
Rheumatic infection	30	15.6	14	21.2	44	17.1	9	8.6	7	8.0	16	8.3	60	13.3
Syphilis	11	5.8	2	3.1	13	5.0	35	33.6	6	6.7	41	21.3	54	12.0
Bacterial infections	11	5.8	3	4.5	14	5.4	3	2.9	4	4.5	7	3.6	21	4.7
Congenital malformations	3	1.5	3	4.5	6	2.3	2	1.9	1	1.1	3	1.5	9	2.0
Thyrotoxicosis	0	--	2	3.1	2	.8	0	--	4	4.5	4	2.1	6	1.3
Cor pulmonale	1	.5	0	-	1	.4	1	.9	0	---	1	.5	2	.4
Tuberculosis	0	-	0	-	0		1	.9	0	--	1	.5	1	.2
Etiology undetermined	6	3.1	4	6.1	10	3.8	4	3.8	7	8.0	11	5.7	21	4.7
Total	192	100	66	100	258	100	104	100	88	100	192	100	450	100

ARTERIOSCLEROTIC AND HYPERTENSIVE HEART DISEASES

Incidence.—Arteriosclerotic-hypertensive forms of heart disease caused 276 deaths, 61.4 percent of the total number. Considerable variation is shown (table 2 and fig. 2) in the incidence of degenerative heart diseases among the different races and sexes. In the white group, these types of the disease caused 65.1 percent of the total cardiac deaths—67.7 percent in the males, and 57.6 percent in the females. In the colored group they caused 56.3 percent of the total cardiac deaths—47.1 percent in the males and 67.0 percent in the females.

It may be that the high incidence of cardiovascular syphilis among Negro males accounts for the lower incidence of deaths due to arteriosclerosis and hypertension. Deaths from cardiovascular syphilis occur approximately a decade earlier than those from degenerative diseases and probably result in many deaths in persons who would have otherwise later succumbed to arteriosclerosis and hypertension.

Ages at death.—The average ages at death in the arteriosclerotic-hypertensive group differs considerably with the races, but little with the sexes in each race. The average ages at death among white males and females were 66.7 and 66.6 years, respectively, an average of 66.6 years for the entire white group. The average ages at death among colored males and females were 55.0 years and 54.2 years, respectively, an average of 54.6 years for the two sexes. The average age at death for the entire series of 276 cases in this diagnostic group was 61.9 years. The marked difference in the ages at death between the races is indicative of the greater havoc inflicted upon the colored race by arteriosclerotic-hypertensive forms of heart disease. From the point of view of morbidity from heart disease as seen among

hospital and out-clinic cases, this has been commented upon by Stone and Vanzant (*2*) and by Schwab and Schulze (*3*).

The maximum number of deaths from degenerative forms of heart disease, as shown in figure 3, occurs among whites in the 60–69 year age period, in which 35.1 percent occurred while the peak of this cause among the colored occurred in the 40–49 year age period, in which 25 percent were found. There are, however, nearly as many deaths among the colored group in the other decades between 40–69 years.

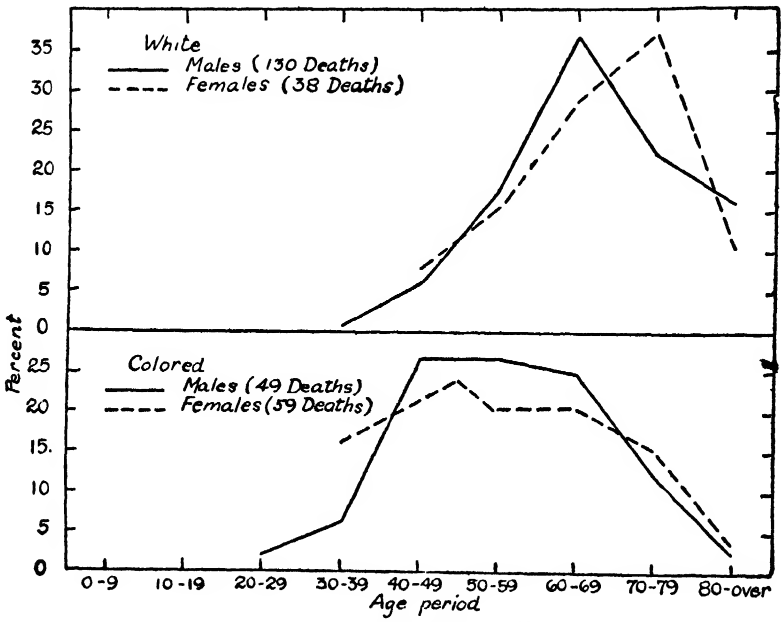

FIGURE 3.—Comparative age distribution of deaths, by race and sex, among 276 fatal cases of arteriosclerotic-hypertensive heart diseases occurring in Washington (D. C.) hospitals during 1932

In the white group, 40.4 percent of the deaths occurred at 70 years or older, as compared with only 16.7 percent among the colored. In both races 31.1 percent occurred at 70 years or older. Only 0.6 percent of the white deaths from arteriosclerotic-hypertensive forms of heart disease occurred before 40 years of age, while 12.9 percent of the colored deaths occurred in this relatively early period. Among colored females, 17.0 percent of the total number of deaths due to degenerative types of heart disease occurred prior to 40 years of age. This high percentage of deaths among colored females from degenerative forms of heart disease is due to the frequency and rapid course of essential hypertension in this group. This will be further explained in discussing the influence of arterial hypertension.

Factors involved.—This group is unlike the others in that it is a rather heterogeneous one, embracing two factors—arteriosclerosis, a structural change, and hypertension, a physiological alteration resulting in a greater load on the myocardium. In a broad sense, the pathological changes are characterized by atherosclerosis, beginning with intimal lipoidosis of the various arteries, and arteriolarsclerosis, an extensive thickening of the walls of the arterioles as the result of prolonged hypertension. Arteriosclerosis and arterial hypertension are so intermingled that in a study of this sort it is impossible to ascribe to each its true relative significance. This, incidently, is quite often the case in clinical medicine. One clinician will consider a given case as hypertensive heart disease with arteriosclerotic changes, while another equally capable one will consider it as arteriosclerotic heart disease with associated arterial hypertension. As the ultimate cause of neither of these conditions is understood, the difficulties in attempting to appraise the relative significance of each are at present insurmountable. An endeavor will be made, however, to indicate the serious aspects of arteriosclerotic changes and of arterial hypertension.

Arteriosclerosis of the coronary arterial tree.—There is an old and well-known clinical adage to the effect that a man is as old as his arteries. This should be changed to "certain arteries." The damage done by arteriosclerosis cannot be measured on a quantitative basis. An individual may have severe generalized arteriosclerotic involvement, including such vessels as the aorta and the arteries to the extremities, and yet the condition may not be inimical to long life. On the other hand, a relatively slight amount of atheromatous changes in the coronary arterial system, certain of the vessels supplying the brain, the renal arteries, or the mesenteric vessels, may result in serious disturbances and often portend an early death.

Arteriosclerosis not infrequently has its incipiency in early life; and while it accompanies advanced years, it should not be looked upon solely as the inevitable result of old age. When attacking the aorta or coronary arteries it is characterized by atheromatous changes in the intima. It may be very selective in its localization, or quite diffuse. It is of metabolic rather than of inflammatory origin. Leary (*4*) has shown that lipoid cells are not infrequently deposited in the intima of the coronary arteries quite early in life. In the young human being this may result in progressive fibrosis, with narrowing of the lumen, which is due to fibrous changes in the intima. In elderly individuals large collections of lipoid cells accumulate in the intima, with minimal amount of fibrous tissue support. Both of these conditions predispose to nutritional difficulties, as a result of which thromboses may result—due in the young, to endothelial

necrosis, and among elderly individuals to the rupture of atheromatous masses into the lumen, with secondary thrombosis.

Either as a result of sudden occlusion following thrombosis or to a gradual narrowing of the intima in its more slowly progressive phases, coronary arteriosclerosis seriously interferes with the nutrition of the myocardium, the conduction system, or both. Arteriosclerosis of the coronary arteries, their branches and ramifications, impoverish the blood supply to these structures. As a result of this inanition, atrophy with replacement fibrosis occurs. This may result in myocardial insufficiency, or the more serious arrhythmias, such as auricular fibrillation or flutter, varying degrees of auriculo-ventricular dissociation, or bundle-branch block. There is no very close correlation between the amount of myocardial scarring and the extent of functional impairment. There appear to be "silent" areas in the heart as in other organs, regions capable of undergoing considerable pathological alterations without seriously disturbing the function of the organ. On the other hand, only slight changes in certain parts of the heart, notably around the conduction system, may result in serious damage.

In a study comprised of examinations of clinical records from a number of institutions it is extremely difficult to estimate the number of cases showing coronary arteriosclerosis or the extent of coronary involvement. Probably most of the older cases had a certain amount of coronary arteriosclerosis, and in the younger ones among those deaths not directly attributable to essential hypertension. The fact that the total number of instances of coronary arteriosclerosis is not stated numerically is not to be considered as in any way minimizing its significance as compared with other factors.

Coronary thrombosis.– One of the most significant aspects of coronary arteriosclerosis is that it results in a tendency for the vessel to undergo thrombosis. The mechanism of the thrombosis has been mentioned. While the degree of atheromatous changes may be slight, thrombosis of an entirely normal coronary artery is nearly inconceivable. This does not refer, however, to the infrequent occlusions of coronary vessels as the result of embolic phenomena due to particles of vegetations being set free in the general circulation in bacterial endocarditides or after the resumption of a regular sinus rhythm following auricular fibrillation; but these conditions are beside the point of this discussion.

There was clinical evidence of thrombosis of the coronary arteries in 34 instances, 30 of which were among white males and 4 among white females. The average age at death was 66.3 years. The youngest age at death was 44 years. In only 5 instances was the condition associated with other manifest evidence of cardiovascular degeneration, a factor to be considered later in greater detail. This

is indicative of the relative selectivity of arteriosclerotic processes. Coronary thrombosis, as in angina pectoris, is relatively infrequent among Negroes, the reason for which no satisfactory explanation has been furnished.

Anginal syndrome.—The mechanism of cardiac pain has intrigued clinicians and research workers during the past 150 years. While the original description of the condition and the term "angina pectoris" has been popularly ascribed to Heberden, who wrote about this disorder in 1768, Bishop (*5*) states that William Harvey described the condition about 100 years previously. Jenner, in 1768, attributed the condition to hardening of the coronary arteries and was able to prove his theory later in the case of John Hunter. From the beginning the cause of this condition has been the subject of much controversy. Albutt and Wenchebach attributed the syndrome to arteriosclerotic changes in the aorta, Mackenzie to myocardial ischemia, while the modern (also the original) view is that angina pectoris is the symptom complex due to insufficiency of the coronary circulation, most often the result of arteriosclerosis of the coronary arteries. There is probably an added neurogenic factor, a state of hyperirritability or the establishment of certain reflex arcs in some individuals which predisposes to this condition.

There is considerable evidence to justify the belief that anginal syndrome is usually the result of coronary insufficiency. In about 75 percent of cases dying of angina pectoris there is post-mortem evidence of coronary arteriosclerosis. The age distribution and predominance of the male sex correspond with other forms of coronary arteriosclerosis. The site and radiation of the pain simulates that produced by thrombosis of the coronary arteries. Electrocardiographic tracings obtained during attacks are not dissimilar to those following coronary occlusion. Nevertheless, conditions unassociated with disease of the coronary arteries produce cardiac pain. Furthermore, bona fide cases of angina pectoris occur in which there is insufficient gross evidence to incriminate the coronary arteries.

Due to the fact that pain around the heart and throughout the chest is not infrequent during the terminal stages of almost any type of heart disease, and may be due to such conditions as terminal pneumonias or congestive heart failure, it was not considered feasible to attempt to evaluate the significance of cardiac pain in this series. Furthermore, deaths from angina pectoris are not so frequent among hospital patients, most of whom are admitted for congestive heart failure or coronary thrombosis.

Other forms of arteriosclerotic heart disease.—Although a large proportion of the diagnoses made of valvular conditions among elderly individuals is commonly due to the misinterpretation of cardiac murmurs associated with hypertrophy and dilatation, or to minor

thickening of the cusps and leaflets of the valves produced by relatively insignificant sclerotic changes of insufficient importance to be considered as real clinical entities, nevertheless arteriosclerotic valvular diseases do occur. Such lesions take the form of calcareous changes in the leaflets and cusps, and in the valve rings, especially of the aortic valve Aortic stenosis is the predominant clinical and post-mortem manifestation, although regurgitations may accompany. These lesions have been described by Monckeberg (*6*); Margolis, Ziellesen, and Barnes (*7*); and by Christian (*8*).

There were 3 cases of aortic valvular insufficiency and 1 of aortic stenosis apparently coming within this category. There were numerous other cases in which mitral murmurs were described, but these were not taken as indicative of real valvular disease. In three other instances there were fairly clearly defined histories of rheumatic heart disease with clinical evidence of mitral stenosis. These were found among elderly individuals, and the rheumatic element appeared to be residual These patients lived to a ripe old age despite their rheumatic heart disease. It is doubtful that such deaths should be considered as due to rheumatic heart disease any more than an individual with healed tuberculous lesions of the lung should be considered as succumbing to pulmonary tuberculosis.

Other forms of arteriosclerotic heart disease, such as dissecting aortic aneurysms, were not encountered.

Relation to other forms of vascular degeneration.—Arteriosclerotic heart disease may occur as an isolated phenomenon in a vascular tree practically free of other atherosclerotic changes, or it may be but the clinical manifestation of wide-spread, frequently generalized arteriosclerosis. Even in the instances in which heart disease is the chief clinical point of interest, wide-spread arteriosclerotic changes may coexist without playing an important part in the clinical picture. From a broad biological viewpoint, the heart in such cases has either undergone somewhat more advanced involution, or is clinically more vociferous about the pathological changes it has suffered.

Among younger individuals with arteriosclerosis of the coronary arteries it is not uncommon to find that the remainder of the circulatory system is practically unimpaired, since arteriosclerosis is sometimes highly selective in its localization. As the cause of arteriosclerosis is still an enigma, there is no explanation for this. However, from the personal, clinical, and public health aspects there is much difference in the case of the middle-aged business man who falls dead from coronary thrombosis and that of the person in the seventies who develops a cerebral apoplexy, the immediate effects of which are survived, but who later develops congestive heart failure and dies of bronchopneumonia

Of the 276 deaths due to arteriosclerotic-hypertensive heart diseases, 134 were regarded as primarily cardiac and 142 as instances of heart failure as part of manifest generalized cardiovascular renal degeneration. In 97 of these there was clinical evidence of other manifestations of vascular deterioration. Renal insufficiency, as exhibited by clinical evidence of nephritis, elevated blood chemistry determinations, and other laboratory tests was considered present in 58 instances. Albuminuria *per se* was not considered as sufficient evidence to warrant regarding the patient as having renal disease. This may occur in congestive heart failure from any cause. Furthermore, certain cases of renal insufficiency were omitted, as they were thought to be merely terminal events. Hemiplegias due to cerebral hemorrhage or thrombosis occurred in 24 instances, arteriosclerotic psychoses in 23 cases, diabetes mellitus 3 times, peripheral vascular occlusions 3, arteriosclerotic gangrene in 3, and hypertrophic arthritis once. In addition to these cases attended by manifest evidences of generalized arteriosclerosis, in 46 others there was evidence of generalized arteriosclerosis on physical examination, notations of senility, or the supervention of death after prolonged periods of general debility or weakness. These latter cases were all in elderly individuals, the average age at death of whom was 73 years. Death in such cases was the result of generalized arteriosclerosis, with cardiac insufficiency acting as the clinical straw breaking the back of the arteriosclerotic changes. The average age at death among the 142 cases with associated cardiovascular renal changes was 68.8 years, as compared with 54.8 years among those lying of heart disease unattended by other clinical manifestations of vascular deterioration.

Relation of arterial hypertension.—One of the most interesting aspects of the degenerative group of cardiac diseases is its relationship to arterial hypertension. This condition, the cause of which is unknown, frequently begins in early middle life. From the anatomical perspective it is characterized by spasm followed by hypertrophy, fibrosis, and eventually sclerosis of the arterioles (*9*) (*10*). Owing to frequent and rather easily discernible involvements of the arterioles of the kidneys, and to the fact that the more rapidly progressive forms of essential hypertension frequently terminate in the form of renal insufficiency with uremia, an attempt has been made to associate essential hypertension with renal arteriosclerosis, as if that condition causes the elevated blood pressure or is the chief manifestation. Arteriolarsclerosis, however, occurs generally, having been found in the arterioles of the brain, retina, spleen, pancreas, skeletal muscles, and other structures (*11*). These wide-spread changes in the terminal portions of the arterial system are probably resultant upon changes in hemodynamics rather than the cause of the abnormally high arterial blood pressure. These changes are not, however, entirely

specific for arterial hypertension, as they are found in individuals not exhibiting this physiological abnormality. It seems, however, that the presence of arterial hypertension accelerates changes in the arterioles.

As a result of the increased arterial load, the heart undergoes enlargement, manifested by hypertrophy of the fibers of the myocardium. This is prejudicial to the osmosis of nutrient fluids to the heart muscle fibers, as a result of which myocardial fatigue and subsequent failure ensues.

It is frequently impossible to distinguish the arteriosclerotic factors from the hypertensive, so closely are they interwoven. Quite often one is unable to determine to what extent each is responsible for the clinical condition. As with the riddle of the hen and the egg, it is not possible to state which preceded the other. To what extent hypertension accentuates arteriosclerotic changes in the heart cannot be answered categorically, although there is sufficient evidence to believe that arterial hypertension predisposes to the development of coronary arteriosclerosis. Certainly the association of the two does not help the prognosis in a given case.

Among these 276 cases in which death was due to degenerative forms of heart disease, blood pressure determinations were obtained in 225, of which 163, or 72.4 percent, showed evidence of arterial hypertension. The criteria used in determining hypertension in this series are minimum systolic arterial blood pressures of 150 millimeters of mercury or diastolic arterial blood pressures of 100 millimeters or higher, regardless of the systolic blood pressure. Since the records of a large number of these cases were begun only a short time before death, it is probable that the percentage here reported showing evidence of hypertension is somewhat lower than that actually occurring. For instance, in most cases of coronary thrombosis there are varying degrees of shock, which results in a diminution of the arterial blood pressure. Patients admitted to hospitals in such a state show an unnaturally low blood pressure, and may well have had an elevation of arterial blood pressure before suffering from this cardiac catastrophe. Furthermore, in essential hypertension there may be at times a return to normal limits, especially after congestive failure sets in. In other cases, even before there is evidence of congestive heart failure, it appears that the hypertension, somewhat analogous to a not infrequent occurrence in hyperthyroidism, burns itself out, leaving a permanently damaged vascular system, but no evidence of hypertension at the time of examination. The fact that in nearly 75 percent of deaths due to arteriosclerotic-hypertensive forms of heart disease the patients maintain an elevated arterial blood pressure until approaching the fatal termination suggests that the mechanism of hypertension is not merely due to an increased resistance in the

arterioles, but that there is an intense dynamic urge, probably associated with the necessity for maintaining an adequate circulation in the vital centers.

In table 3 is shown the age distribution of the 225 fatal cases of arteriosclerotic-hypertensive forms of heart disease upon which blood-pressure determinations were made. Of the 51 deaths occurring before 50 years of age, 48, or approximately 94 percent, of the patients had elevated arterial blood pressures during their fatal illnesses. In other groups somewhat smaller percentages showed evidence of hypertension. It is felt that, in most deaths from degenerative forms of heart disease under 50 years of age, and in a predominantly high proportion under 60 years of age, hypertension is a factor of paramount importance. There are certain deaths due to a rather selective type of coronary arteriosclerosis, usually accompanied with a thrombosis, in which it is not possible to elicit histories or find evidence of arterial hypertension, but the aggregate of these is relatively small, especially under 50 years of age.

TABLE 3.—*Arterial blood pressure in 225 cases in which death was subsequently due to arteriosclerotic-hypertensive forms of heart disease in Washington (D. C.) hospitals during 1932. Minimum systolic blood pressures of 150 millimeters or diastolic pressures of 100 millimeters were considered as manifest evidence of arterial hypertension. Distribution based on ages at death*

Age periods	Total blood pressure determinations	Number elevated	Number normal	Percent elevated
30-39 years *	15	14	1	93.3
40-49 years	36	34	2	94.4
50-59 years	49	34	15	69.4
60-69 years	61	36	25	59.0
70-79 years	41	29	12	70.8
80 and over	23	16	7	69.6
Total	225	163	62	72.4

*Including 1 in 20-29-year age group

The problem of essential hypertension is the gravest in middle adult life, not even excepting that of cancer. To the individual at the age of 40 the greatest single factor in estimating the probability of living to a ripe old age is whether the arterial blood pressure has begun to show signs of elevation. Fahr (*12*) estimates that 140,000 persons in the United States die annually of "hyperpiesis", or essential hypertension. He estimates that approximately 50 percent of this number die of heart failure, 40 percent of apoplexy, and 10 percent of uremia. On this basis, he believes that 70,000 die annually of hypertensive heart disease.

In table 4 is shown the average systolic and diastolic arterial blood pressures and the percentages of cases with diastolic blood pressures of 100 millimeters or higher among 163 cases showing evidence of in-

creased blood pressures. These records in a number of cases were probably somewhat lower than the average during the patients' illnesses, and probably very infrequently represent the maximum arterial blood pressures. Paradoxical as it may seem, however, it often happens that there is a rise in the arterial blood pressure during a bout of congestive heart failure, with subsequent reduction upon improvement in the action of the heart. It may have been that some of the determinations were made during these crises. The diastolic pressures are probably more accurate, as they show less tendency to fluctuate and tend to maintain a more constant level after congestive heart failure sets in. This table shows that both the systolic and diastolic pressures are higher in those cases in which death occurs before 50 years of age. Furthermore, while 86.0 percent of those dying before 50 had diastolic elevations of 100 millimeters or higher, among those surviving 70 years of age only 51.1 percent showed this diastolic rise.

TABLE 4.—*Average systolic and diastolic arterial blood pressures, with percentage of elevated diastolic pressures, among 163 patients manifesting evidences of arterial hypertension and subsequently dying of arteriosclerotic-hypertensive forms of heart disease in Washington (D. C.) hospitals during 1932. Tabulated according to ages at death*

Age period	Average systolic blood pressure	Average diastolic blood pressure	Percentage with diastolic elevation of 100 millimeters of mercury or higher
Under 50 years	205	130	86.0
50–59 years	193	118	79.4
60–69 years	172	107	72.2
70 years and over	170	100	51.5

In table 5 is shown the percentage in each race and sex with evidence of arterial hypertension. Due to the conditions under which the blood-pressure determinations were obtained, the figures cited in this table cannot be taken as absolute. Nevertheless, they serve as an index to the greater frequency of hypertension in the colored race than in the white. It is noted that, among those patients upon whom blood-pressure determinations were obtained, 89.4 percent of the colored group showed evidence of hypertension as compared with only 60.3 percent in the white group. This tends to discredit the presumption that hypertension predisposes to changes in the coronary arteries, since both clinical and pathological evidence of coronary arteriosclerosis are relatively infrequent among Negroes, while hypertension is far more common in the colored than in the white population. It may be, however, that among Negroes a fatal termination occurs before a great deal of coronary arteriosclerosis has resulted. To support this, it is noted that, among the degenerative cases with

hypertension, death occurred at the average age of 52.8 years—54 years and 51.6 years among males and females, respectively. Among the whites the average age at death of cases manifesting arterial hypertension was 65.1 years—66.2 and 61.4 years among males and females, respectively. The average for all cases showing hypertension was 59.5 years.

TABLE 5.—*Number and percentage of fatal cases of arteriosclerotic-hypertensive types of heart disease in Washington (D. C.) hospitals during 1932 showing evidence of arterial hypertension. Based on color and sex of decedents*

	White			Colored			Total
	Males	Females	Total	Males	Females	Total	
Total cases	130	38	168	49	59	108	276
Number with blood pressure determinations	102	29	131	43	51	94	225
Number with elevated blood pressures	61	18	79	37	47	84	163
Percent showing elevated blood pressures	60.0	63.1	60.3	86.0	92.9	89.4	72.4

Blood Wassermann and Kahn reactions.—In this series of 276 deaths from arteriosclerotic-hypertensive forms of heart disease, 146 Wassermann or Kahn reactions were recorded. Of these (table 6) 22, or 15.1 percent, were positive. This is not in excess of the percentage expected among each race and sex group in the general population. However, among Negroes it was found that the average age at death among those with positive serological reactions was 46.2 years, as compared with 54.7 years among those with negative serology. This suggests that, while syphilis has little, if any, effect in initiating arteriosclerotic-hypertensive forms of heart disease, the concurrence of these conditions results in a higher fatality.

TABLE 6.—*Blood Wassermann or Kahn reactions, according to color and sex, obtained in routine serological examinations among 146 of 276 cases of arteriosclerotic-hypertensive forms of heart disease subsequently dying in Washington (D. C.) hospitals during 1932*

	White			Colored			Total
	Male	Female	Total	Male	Female	Total	
Total cases	130	38	168	49	59	108	276
Cases upon which serological reactions were obtained	68	16	84	28	34	62	146
Number positive	4	1	5	10	7	17	22
Percent positive	6.0	6.3	6.0	35.8	20.6	27.4	15.1

Necropsy evidence.—There were 81 necropsies performed on this group, the results of which are presented in table 7. As compared with other etiological groups there is a lack of characteristic findings here. This is to be expected, as among these cases the myocardial

and vascular changes are frequently but part of a general involution and not a specific entity as is syphilitic mesaortitis or rheumatic carditis.

TABLE 7.—*Necropsy findings in 81 cases (by color and sex) of arteriosclerotic-hypertensive forms of heart disease occurring in Washington (D. C.) hospitals during 1932*

	White			Colored			Total
	Male	Female	Total	Male	Female	Total	
Total cases	130	38	168	49	59	108	276
Total necropsies	41	9	50	11	20	31	81
Coronary arteriosclerosis	25	6	31	4	2	6	37
Coronary thrombosis	12	1	13	0	0	0	13
Myocardial fibrosis	33	5	38	5	8	13	51
Cardiac enlargement (hypertrophy and dilatation)	10	6	16	8	14	22	38
Hydropericardium	4	2	6	5	2	7	13
Hemopericardium	3	0	3	1	0	1	4
Adhesive pericardium	4	0	4	0	4	4	8
Valvular sclerosis	13	2	15	4	8	12	27
Residual rheumatic lesions	0	0	0	1	0	1	1
Arteriosclerotic changes in aorta	31	9	40	8	4	12	52
Syphilitic aortitis	0	0	0	0	5	5	5
Evidence of congestive heart failure	18	8	26	9	16	25	51
Renal changes	21	5	26	7	15	22	48

In this part of the study, owing to lack of uniformity among pathologists in the many hospitals throughout the city it was necessary to select general terms. For example, one pathologist will describe a given case as coronary thrombosis, while another will term a similar lesion coronary occlusion. Chronic myocarditis, myocardial fibrosis, and fibrous myocarditis are used interchangeably. The findings in table 7 are not offered for the purpose of showing the exact proportion in which the various lesions occur, but to show the general trend in necropsy diagnoses in the hospitals of a large city. It is quite probable that had these post-mortem examinations been performed by one individual, the results would have been somewhat different. On the other hand, the findings here described were obtained by a "jury of pathologists" and the element of personal opinion is thereby lessened.

Arteriosclerosis of the coronary arteries was diagnosed as such in 37 instances, of which 31 were white subjects. Coronary thrombosis was found in 13 autopsies, all of which were on white subjects. The relative infrequency of angina pectoris in the colored race is a widely attested clinical observation. Libman (*13*) believes that this is due to the fact that the colored race is relatively hyposensitive to pain. It appears, nevertheless, that coronary arteriosclerosis is a less frequent disease among American Negroes than among the white population. Thus the lack of symptomatic evidence of coronary disease depends more on lack of organic changes than on any nervous mechanism, unless it can be shown that the development of coronary arte-

riosclerosis is dependent upon nervous influences. This, of course, has not been proved.

If the cases in which coronary arteriosclerosis, coronary thrombosis, and myocardial fibrosis are grouped together, 55 of the 81 necropsies showed evidence of changes which may be interpreted as due to arteriosclerosis of the coronary arteries or their branches.

Valvular sclerosis occurred in 27 instances, most of which were in the form of minor degrees of thickening of the valve cusps. Stenosis of the aortic valve occurred in one instance. There was 1 case of mitral insufficiency, due to a rupture of a papillary muscle following a coronary occlusion with myocardial infarction. A residual rheumatic lesion was noted in 1 instance. Luetic aortitis was noted in 5 cases. Arteriosclerosis of the aorta was recorded in 52 instances. Cardiac enlargement was reported in 38 necropsies. This relative infrequency is frankly open to question, as is also the frequency with which no mention was made of evidence of congestive heart failure. Had all of the hearts been weighed, it is likely that a greater number would have been recorded as enlarged.

RHEUMATIC HEART DISEASE

Rheumatic heart disease is, perhaps, the most important form of heart disease from economic and social points of view. It results in cardiac crippling and death among those so afflicted during the periods of education, greatest earning capacity, and when most needed in the home. This type of heart disease is due to rheumatic infection, the ultimate cause of which is still unknown. Such evidence as exists at present indicts, but has not yet convicted, hemolytic streptococci as the responsible micro-organisms. The writer has reviewed the bacterial investigations in another article (*14*).

Rheumatic infection is a chronic systemic disease characterized by tendencies to recrudescences and recurrences. Its pathological manifestations occur in the forms of proliferative and exudative reactions, involving in particular endothelial and subendothelial tissues. It rarely directly involves parenchymal structures. It has a predilection for the tissues of the heart, serous membranes, periarthritic structures, skeletal muscle, and the brain. Its manifestations are frequently from both clinical and pathological standpoints quite evanescent, tending to move from structure to structure. It is frequently associated with tonsillitis and pharyngitis, attacks of which often precede the onset of the disease or initiate recurrences and relapses. There is a strong tendency toward chronicity, the disease existing in a smouldering state, with periods of activity resulting from factors not yet fully understood.

The heart is almost always involved to a greater or less degree during active infection. Permanent damage to this organ frequently, but

not invariably, occurs. Cardiac involvement occurs in the forms of endocarditis, valvulitis, myocarditis, and pericarditis, singly or in combination, and in all degrees of severity. Rheumatic involvement of the coronary arteries, aorta, and pulmonary arteries is not uncommon. Death may be due either to active rheumatic carditis or to mechanical difficulties, the result of previous infection with subsequent fibrous changes. Furthermore, owing to previous infection, the resistance of the valves may be so impaired that organisms gain a foothold, causing death from infective or bacterial endocarditis.

Incidence.—Rheumatic heart disease was the etiological type involved in 60 deaths, or 13.3 percent of the 450 deaths due to heart disease included in this study. It caused 44, or 17.1 percent, of deaths from heart disease among white patients, as compared with 16, or 8.3 percent, of the cardiac deaths among the hospitalized colored cases. This is in accord with the general observation that the disease is more common in the white race. It was the cause of 30, or 15.6 percent, of the cardiac deaths among white males, and 14, or 21.2 percent, among white females. While the absolute number of deaths was higher among white males, the incidence is higher among white females. It is generally noted that rheumatic fever and rheumatic heart disease are more common among white females. Among the colored cases there was practically no difference in either the actual number of deaths or the incidence of deaths due to rheumatic heart disease in the sexes, this condition accounting for 9, or 8.6 percent, of the total deaths from heart disease among the males and for 7, or 8.0 percent, among the females.

Ages at death.—The average age at death was 29 years. For the white group it was 30.5 years—30.9 years for males and 28 for females. For the colored, both sexes, the average age at death was 24.7 years—26.6 for males and 22.9 for females. Coombs (*15*), in England, in a series of 98 deaths due to rheumatic heart disease examined post-mortem, found that the average age at death was 28.3 years, a very close approximation of this series.

Rheumatic carditis as a cause of death.—Findlay (*16*) has indicated that there are two factors causing death in this disease, infection and myocardial fatigue. Many die of rheumatic carditis, rarely during the first attack of rheumatic fever, but usually as the result of a long continued progressive cardiac infection characterized by periods of exacerbation with intervening periods of remission. This has been described by Coburn (*17*) as the "rheumatic state," and is essentially a generalized chronic infection tending to smoulder, but which flares up on provocation, with or without joint involvement. These patients suffer from a certain amount of cardiac insufficiency, becoming more marked with increased activity of the infection. Frank congestive heart failure is a late manifestation, occurring either as

the result of severe rheumatic carditis or as the summation of many low grade inflammatory processes. There were 27 deaths in which infection was regarded as the factor of paramount significance. The average age at death among these cases was 13.8 years.

Myocardial fatigue.—The other factor causing death in rheumatic heart disease is myocardial fatigue. This occurs chiefly as the result of the superimposition of arteriosclerotic changes on hearts whose action has been impaired by sclerotic and calcific changes in the valves, producing severe deformities, of myocardial fibrosis following rheumatic myocarditis, as the direct result of rheumatic involvement of the coronary arteries, and in many cases by various forms of pericardial adhesions. There is good reason to believe that rheumatic heart disease accelerates arteriosclerotic changes in the heart. The actual failure may be immediately precipitated by some form of undue fatigue or exertion, or by some intercurrent infection. Furthermore, in a number of cases there are varying degrees of rheumatic activity (*18*). This is particularly true among the subjects examined at autopsy who died of the disease in early adult life and even up to about 40 years of age. However, from a practical clinical point of view, infection in these well-developed valvular lesions is probably secondary in importance to the actual mechanical difficulties.

In this series the cause of death appeared to be due to mechanical difficulties associated with well-formed valvular and pericardial lesions in 33 instances. The average age at death among these cases was 41.1 years.

Histories of rheumatic infection.—In this series of 60 fatal cases of rheumatic heart disease, histories of rheumatic fever were recorded in 31 instances, chorea once, scarlet fever once, and in 8 instances there was evidence of active rheumatic pancarditis without joint involvement. Evidence of rheumatic infection was therefore found in 41 cases. Of the remaining 19 cases, history of rheumatic infection was denied in 5, and in 14 it was undetermined. Scarlet fever is here mentioned as an etiological factor, as in rare occasions after scarlet fever a rheumatic type of heart disease develops. In most of such cases there is good reason to believe that a rheumatic infection occurred conjointly with the scarlatina. In a few instances scarlet fever *per se* apparently produces valvular heart disease. There is no clear-cut demarcation between these conditions under such circumstances, and it is quite probable that both are produced by closely related organisms, hemolytic streptococci.

Clinical findings.—Clinically, pericarditis was described alone in 3 cases, mitral valvular disease, insufficiency or stenosis, or both, in 29 cases, combined aortic and mitral involvement in 11, aortic insufficiency without mitral lesions in 3, and combinations of pericarditis or adherent pericardium with valve lesions in 14.

Necropsy findings.—Necropsies were obtained in 27 instances. Active rheumatic pancarditis was found in 14 cases, mitral valvular disease in 6, combined aortic and mitral lesions in 6, and aortic valvular disease without involvement of other valves in 1.

Wassermann reactions.—Positive blood Wassermann or Kahn reactions were reported in 3 of 20 cases upon which such examinations were performed

Associated hypertension.—Arterial hypertension was found in 6 of the 33 cases upon which blood pressure determinations were made. Owing to the disease being so prevalent among juveniles, blood pressure determinations are frequently omitted.

Associated conditions.—Associated conditions included renal insufficiency in 8 cases, pulmonary tuberculosis in 1 case, a psychosis in 1, cerebral embolism in 4 cases, and bacteremia in 3. These instances of streptococcal bacteremia were terminal events in cases of active rheumatic carditis, and not subacute bacterial endocarditis.

SYPHILIS OF THE AORTA AND HEART (SYPHILITIC HEART DISEASE)

Syphilitic heart disease, or, more strictly speaking, cardiothoracic syphilis, consists of syphilitic aortitis with its extensions and complications. During the early invasion of the body by the spirochaetes, an inflammatory reaction begins around the vasa vasorum, the nutrient blood vessels in the walls of the aorta. This perivascular infiltration occurs in the middle coat of the aorta, and may consist of a simple inflammation, clinically undetectable, and be discovered only by microscopic examination after necropsy. Although the middle coat is chiefly affected, a certain amount of scarring in the adventitia is not uncommon Also periaortitis, involvement of the adventitia without mesaortitis, sometimes occurs as an isolated phenomenon *(19)*.

The aortitis may be so extensive that the aortic wall loses its elasticity and becomes weakened. This results in dilatation and may even progress to the aneurysmal stage. The aortitis may extend downward, separating the cusps of the aortic valve at their commissures, producing shortening and curling of the cusps and dilatation of the ring of the aortic valve, resulting in an insufficiency of the aortic valve, the most common lesion. The aortitis may surround the orifices of the coronary arteries located in the sinuses of valsalva, producing varying degrees of stenosis or atresia of the mouths of the coronary arteries, as a result of which the nutrition of the cardiac musculature becomes seriously impaired. This involvement of the coronary ostii is a frequent cause of sudden death, due either to the progress of the disease or to the injudicious use of arsenicals, as a result of which edema is produced around the coronary orifices, resulting in sudden occlusion. The luetic involvement does

not extend more than 1 or 2 cm into the coronary arteries and does not appear to be associated with sudden occlusion due to thrombosis of the coronary arteries, from which it should be distinguished. The latter condition occurs as the result of arteriosclerosis and is not observed more frequently among those afflicted with syphilis than among nonluetics.

It does not appear that there is a direct spirochaetal involvement of the myocardium. Areas of focal myocardial fibrosis are found, but these appear to be the result of impairment of the nutrition of the myocardium rather than to an active inflammation.

The earliest positive clinical signs of syphilitic involvement of the heart and aorta can be made only during the late stages of syphilis. While there are exceptions, the general course of the disease is downward and attempts at treatment are very discouraging. Death usually supervenes about 3 or 4 years after diagnosis and in less than 2 years after congestive failure sets in. Death usually results from myocardial failure, from sudden occlusion of a coronary orifice, or from rupture of an aneurysm or erosion by an aneurysm of some vital structure. In this disease, as in most other forms of heart disease occurring in adult life, arteriosclerotic changes play an important role, and appear to be accelerated as a result of luetic involvement.

Incidence.—Syphilis of the aorta and heart was responsible for 54, or 12.0 percent, of the total deaths here reported on. It was the etiological factor in 5.0 percent of the deaths from heart disease in the white group, resulting in 11, or 5.8 percent, of the deaths among the white males, and in only 2, or 3.8 percent, among white females. Among the colored males, this condition accounted for 35, or 33.6 percent, of deaths, and among the colored females for 6, or 6.7 percent.

The marked difference in the incidence of syphilitic heart disease in the two races is in accord with other studies conducted in the South. Laws *(20)* in an analysis of 645 clinical cases of organic heart disease among patients admitted to the wards and out-patient department of Vanderbilt University Medical school in Nashville, Tenn., found that syphilis was the etiological factor in 15.4 percent of heart disease among Negroes as contrasted with only 2.2 percent among white patients.

The marked difference in the incidence of syphilis of the aorta and heart between colored males and females is noteworthy. Gager and Dunn *(21)* found a similar, but not so marked, difference in a large series of colored dispensary patients at the George Washington University Hospital in Washington, D. C. These observers noted that syphilitic heart disease was the etiological type in 21.0 percent of heart disease among colored males, but in only 10.5 percent in colored

females. Since the incidence of syphilitic infection, as determined by blood Wassermann surveys conducted by the Public Health Service in cooperation with the Julius Rosenwald Fund *(22)* is approximately the same in both sexes among Negroes, it is quite probable that the hard manual labor performed by colored males predisposes them to the development of clinical manifestations of luetic aortitis.

Ages at death.—The average age at death was 51.5 years among white cases and 42.7 years among the colored. For the entire series it was 46.8 years. The disease manifests itself earlier and runs a more progressive course in the colored race. Whether this is due to any inherent susceptibility of the cardiovascular system in this race to spirochaetal infection, to lack of early and adequate treatment, to greater and more fatiguing physical exertion, or to earlier ages of initial lesions has never been determined.

Ages of initial lesions.—Initial lesions were admitted in 14 cases. The average age of 12 of these was 24.7 years at the time of the initial lesion, and the average age at death was 42.5 years, an average of 17.8 years intervening between the initial lesion and the fatal termination.

Clinical diagnoses.—The clinical diagnoses consisted in simple aortitis in 7 instances, aneurysms of the thoracic aorta without valvular involvement in 2, aneurysms of the thoracic aorta with aortic valvular insufficiency in 7, and aortic valvular insufficiency without aneurysms in 38. There were, therefore, 45 instances of aortic insufficiency and 9 of aneurysms of the thoracic aorta, some in combination with each other, in a total of 54 cases ending fatally. Rupture of aneurysms was the immediate cause of 2 deaths.

Necropsy evidence.—Twenty-nine post-mortem examinations were performed. There were 4 cases of simple aortitis (fusiform dilatation due to luetic mesaortitis), one case of aneurysm without aortic valvular insufficiency, 7 cases of aneurysm with aortic valvular insufficiency, and 17 of aortic valvular insufficiency without aneurysms. Aortic valvular insufficiency, therefore, occurred in a total of 24 cases and aneurysms of the thoracic aorta in 8 cases examined post mortem. There were 6 instances of luetic involvement around the orifices of the coronary arteries.

Blood Wassermann and Kahn reactions.—Blood Wassermann or Kahn reactions were recorded in 42 instances, 40, or 95.2 percent, of which were positive.

Arterial hypertension.—Blood-pressure determinations were recorded in 46 instances, 24, or 52.2 percent, of which were elevated. The average age at death among those with elevated arterial blood pressures was 48.0 years as compared with 44.2 years among those with normal blood pressures. One would expect the converse, expecially after noting that cases of arteriosclerotic-hypertensive forms of

heart disease with syphilis die earlier than those not so afflicted. It may be that the development of a certain degree of hypertension assists in maintaining the coronary circulation. A higher systolic pressure may serve as a greater head of flow to counteract the effects of a lowered diastolic pressure in cases of aortic insufficiency.

Associated conditions.—Among the associated conditions, uterine fibroids, paresis, chronic arthritis, peptic ulcer, cerebral apoplexy, and pulmonary tuberculosis were each encountered once. Renal insufficiency (other than in the terminal stages of congestive heart failure) was noted twice.

Syphilis of the aorta and heart, unlike many degenerative cardiac conditions, is a clearly defined clinical and pathological entity. Unlike many cases of arteriosclerotic-hypertensive forms of heart disease, it is usually unassociated with other clinical evidence of vascular deterioration.

BACTERIAL ENDOCARDITIS AND PERICARDITIS

Bacterial heart disease is characterized by the implantation, usually on the valves, of organisms producing soft vegetations. Less frequently it is due to pyogenic infections of the pericardium Both conditions are almost invariably fatal. Death supervenes after clinical courses of varying, frequently lengthy, durations, often lasting over a year. Death is directly due to wasting infection, embolic phenomena due to the escape of particles of vegetations into the arterial circulation, nephritis of toxic or embolic origin, and infrequently to congestive heart failure.

Bacterial endocarditides are most often superimposed on preexisting lesions, either rheumatic or congenital They are only very rarely engrafted on syphilitic cardiovascular affections Bacterial pericarditides are usually due to trauma, or follow lobar pneumonia, not infrequently occurring with empyema of the lungs. The instance included in this series was a rather atypical one, being due to a *streptococcus viridans* infection associated with a rheumatic adherent pericardium. This case has been reported in detail by Yater and the writer (*23*).

Incidence.—In this series of 450 deaths from organic heart disease, 21, or 4.7 percent, were attributable to bacterial carditides. These types of lesions resulted in 11, or 5.8 percent, of deaths from heart disease among white males, and 3, or 4.5 percent, of cardiac deaths among white females. Altogether, it resulted in 14 deaths, or 5.4 percent of the total deaths among the white group. Among colored males it was the cause of 3 deaths, or 2.9 percent of the heart disease mortality, and among colored females it resulted in 4 deaths, or 4.5 percent. In the entire colored group these lesions accounted for 7 deaths—3.6 percent of the total. The lower percentage of deaths

due to this type of heart disease among colored persons is probably a reflection of the lower incidence of rheumatic heart disease, the chief predisposing factor.

Ages at death.—The average age at death was 36.4 years. Three deaths occurred between 10–19 years, 2 between 20–29 years, 7 between 30–39 years, 5 between 40–49 years, and 4 between 50–59 years of age. That no deaths occurred under 10 years of age or past 60 is in keeping with other observations.

Clinical and necropsy diagnoses.—Among these 21 deaths, 11 were diagnosed clinically as having lesions of the mitral valve, 4 as having aortic valvular insufficiency, 3 as having combined lesions of aortic and mitral valves, 2 as other combinations of valvular lesions, and 1 as a case of purulent pericarditis. Twelve necropsies were obtained, in 6 of which vegetations were located on the mitral valve, in 2 on both mitral and aortic valves, in 3 on other combinations of valves, and 1 was a case of purulent pericarditis.

Preexisting lesions.—Infective or subacute bacterial endocarditis, especially when due to *St. viridans*, is commonly engrafted on preexisting rheumatic or congenital lesions. There was evidence of old rheumatic heart disease in 12 of the 21 cases. In none was there evidence of congenital maldevelopments or of syphilis of the heart and aorta.

Blood cultures.—Blood cultures were recorded in 10 of the 21 cases, 6 of which were positive. In all of these the organisms were nonhemolytic streptococci, identified as *St. viridans* in five instances.

Blood Wassermann and Kahn reactions.—Blood Wasserman or Kahn reactions were obtained in 14 cases, only 1 of which was positive. This tends to refute the belief that in this condition falsely positive serology is frequent.

Blood pressure determinations.—Blood pressure determinations were recorded in 17 cases, only 2 of which were elevated.

CONGENITAL HEART DISEASE

Congenital cardiac malformations resulted in nine deaths, or 2.0 percent of this series. All deaths occurred under 10 years of age, the average age at death being about 3 months. These patients were generally physically below par in many respects. Among the associated conditions were otitis media, enteric infections, infected umbilical cords, and congenital syphilis. In one case there was a congenital malformation of the chest. Attention is invited to the frequency with which this condition is attended by other congenital maldevelopments. It is quite probable that, in this group, there were other serious malformations or deformities not detected, as there were no post-mortem examinations performed.

THYROTOXIC HEART DISEASE

Thyrotoxic heart disease was responsible for six deaths, or 1.3 percent of the deaths from heart disease in the group under study. Grave's disease, or exophthalmic goiter, was the form of hyperthyroidism in 5 fatal cases and a toxic adenoma in 1 case. All of the fatal cases were among females, 4 of which were colored and 2 white. The average age at death was 44.7 years. Two deaths occurred in the age group 30–39 years, 3 in the 40–49 year age period, and 1 in the 60–69 year age period, the last case dying at the age of 67 years of heart disease the result of a toxic adenoma of the thyroid gland.

HEART DISEASE DUE TO MISCELLANEOUS AND UNDETERMINED CAUSES

Cor pulmonale.—There were two deaths due to cor pulmonale. This type of heart disease is by no means rare, and is due to pulmonary emphysema and to endarteritis and arteriosclerosis of the pulmonary arteries and their branches. As a result of these changes in the pulmonary circulation, the right ventricle must overcome an increased resistance. This produces hypertrophy and dilatation and subsequent failure of the right side of the heart.

Tuberculous pericarditis.—Tuberculosis is but an infrequent cause of heart disease; but, when occurring, it is manifested in the form of tuberculous pericarditis, and more rarely as a tuberculous myocarditis or endocarditis. There were other cases of tuberculous pericarditis encountered in reviewing hospital records, but only one case was discovered in which death appeared to be due to congestive heart failure rather than to extensive tuberculous involvement.

Heart disease of undetermined etiology.—In 21 cases or 5.7 percent, of this series either no etiological factor could be ascribed, or there was evidence of two or more factors being involved in the etiology of the condition, but it was impossible on the basis of the information at hand to determine their relative significance.

SUMMARY AND CONCLUSIONS

The etiological factors in 450 deaths from heart disease occurring in Washington (D. C.), hospitals during 1932 have been studied. Arteriosclerotic-hypertensive diseases resulted in 61.4 percent, rheumatic heart disease in 13.3 percent, syphilitic aortitis with its extensions and complications (syphilitic heart disease) in 12.0 percent, bacterial endocarditides and pericarditis in 4.7 percent, congenital cardiac malformations in 2.0 percent, thyrotoxic heart disease in 1.3 percent, other conditions in 0.6 percent, and in 4.7 percent the etiological factor was undetermined.

There were considerable variations according to sex and color. Rheumatic heart disease is more common in the white race, particu-

larly among females, than in the colored race. The degenerative diseases, particularly hypertensive heart disease, are common to all races and both sexes. Hypertension is especially fatal in the colored race, more so among females than among males. Coronary arteriosclerosis and thrombosis are uncommon among Negroes. Syphilis of the aorta and heart is a very common cause of death among colored males, but not so common among colored females.

The importance of arterial hypertension in causing deaths in middle age can hardly be overstressed. In the degenerative forms of heart disease in persons under 50 years of age hypertension was evident in nearly all cases.

Heart disease results in death considerably earlier in the colored race than in the white. This is due in part to the greater prevalence of cardiovascular syphilis and to the greater frequency of arterial hypertension and to the more rapid progression of the degenerative diseases.

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COURT DECISION ON PUBLIC HEALTH

Glass in bottle of cream held violation of agriculture and markets law.—(New York Supreme Court, Appellate Division; *Bourcheix* v. *Willow Brook Dairy, Inc.*, 277 N. Y. S. 292; decided February 15, 1935.) Section 50 of the agriculture and markets law provided in part as follows:

> No person shall sell or exchange or offer or expose for sale or exchange any unclean, impure, unhealthy, adulterated, or unwholesome milk or any cream from the same, or any unclean, impure, unhealthy, adulterated, colored, or unwholesome cream * * *.

In an action brought against the defendant corporation the following was filed by the majority of the court:

> Per curiam: Judgment in favor of plaintiff, in action predicated upon the theory of negligence to recover damages for personal injuries resulting from the consumption of foodstuffs unfit for that purpose, and order denying defendant's motion for a new trial affirmed, with costs. No opinion.

In a memorandum setting forth the views of the dissenting justices it was stated that there was agreement that, if the presence of the glass in the bottle of cream was a violation of section 50 above quoted, it would constitute negligence as a matter of law. The majority of the court took the view that section 50 applied to a case where there was glass in a bottle of cream, while the minority were not in accord with this view.

DEATHS DURING WEEK ENDED AUG. 3, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 3, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,148	7,134
Deaths per 1,000 population, annual basis	10.0	9.9
Deaths under 1 year of age	530	577
Deaths under 1 year of age per 1,000 estimated live births	49	53
Deaths per 1,000 population, annual basis, first 31 weeks of year	11.9	11.9
Data from industrial insurance companies:		
Policies in force	67,973,558	67,614,450
Number of death claims	11,361	12,533
Death claims per 1,000 policies in force, annual rate	8.7	9.7
Death claims per 1,000 policies, first 31 weeks of year, annual rate	10.2	10.4

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Aug. 10, 1935, and Aug. 11, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 10, 1935, and Aug. 11, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934
New England States:								
Maine					21	4	0	0
New Hampshire					2	1	0	0
Vermont					11	5	0	0
Massachusetts	6	11			32	20	1	0
Rhode Island		2			1	12	1	0
Connecticut	2	3		1	26	16	0	1
Middle Atlantic States:								
New York	9	12	[1] 5	[1] 4	280	99	16	2
New Jersey	6	19	3	4	41	40	1	0
Pennsylvania	29	32			76	394	2	5
East North Central States:								
Ohio	9	15	4	33	65	101	3	2
Indiana	9	3	14	22	8	13	0	1
Illinois	31	12	9	4	71	66	4	7
Michigan	14	7	2	1	93	24	2	0
Wisconsin	2	2	19	13	239	138	2	0
West North Central States:								
Minnesota	4	1			8	5	0	0
Iowa	3	3	2		4	8	2	0
Missouri	22	24	25	1	16	13	0	2
North Dakota [2]	2	3	6		23	11	0	0
South Dakota	1	2				16	0	0
Nebraska	4	6			3	3	0	0
Kansas	5	7		1		15	0	8
South Atlantic States:								
Delaware				2	3	3	0	0
Maryland [2] [3]	3		1	234	10	8	3	0
District of Columbia		4					0	0
Virginia [2]	16	9			13	41	0	0
West Virginia [2]	14	12	47	140	4	17	3	1
North Carolina [2]	14	17			8	27	1	0
South Carolina [4]	3	4	42	58	8	10	0	0
Georgia [4]	8	7				4	0	0
Florida [4]	9	14			2	34	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 10, 1935, and Aug. 11, 1934—**Continued**

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934
East South Central States:								
Kentucky	13	6			18	14	2	0
Tennessee	9	5	3	7	1	15	1	1
Alabama [4]	18	16		3	5	36	1	1
Mississippi [3]	12	12					1	0
West South Central States:								
Arkansas	8	5	4		3		2	0
Louisiana	9	13	4	2	2	4	0	0
Oklahoma [5]	7	1	29	4	4		0	0
Texas [4]	76	33	30	54	39	43	1	1
Mountain States:								
Montana [2]	4	2		2	8	14	0	0
Idaho		1			3	4	0	0
Wyoming	1				8	7	0	0
Colorado	7	2			7	18	2	0
New Mexico	1		2	68	1	10	0	0
Arizona	1		4			3	1	0
Utah [3]	1					1	0	0
Pacific States:								
Washington		3		1	26	12	0	0
Oregon [2]	1		2	8	44	5	0	0
California	9	21	2	5	99	65	7	1
Total	402	351	268	672	1,336	1,399	60	28
First 32 weeks of year	17,719	19,996	103,767	48,803	694,433	667,139	4,087	1,565

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934
New England States:								
Maine	1	1	6	1	0	0	1	0
New Hampshire	5	0	2	1	0	0	1	0
Vermont	0	0	1	4	0	0	1	0
Massachusetts	74	6	35	35	0	0	3	10
Rhode Island	8	0	1	5	0	0	0	0
Connecticut	22	1	11	3	0	0	1	3
Middle Atlantic States:								
New York	158	9	100	118	0	0	29	36
New Jersey	13	7	13	30	0	0	6	18
Pennsylvania	8	10	56	101	0	0	10	29
East North Central States:								
Ohio	1	19	50	77	0	0	15	39
Indiana	1	1	12	7	0	1	6	28
Illinois	13	10	131	72	0	0	30	51
Michigan	14	4	47	66	0	0	9	29
Wisconsin	1	3	52	31	4	4	0	9
West North Central States:								
Minnesota	0	1	26	11	1	0	14	2
Iowa	0	1	16	10	7	0	4	13
Missouri	1	1	10	12	0	0	30	64
North Dakota [2]	0	0	4	3	0	0	1	5
South Dakota	0	4		6	1	1	0	2
Nebraska	0	0	4	3	2	0	0	1
Kansas	2	9	17	18	1	0	16	25
South Atlantic States:								
Delaware	1	0	1	3	0	0	1	2
Maryland [2 3]	4	2	10	10	0	0	19	21
District of Columbia	4	0	5	1	0	0	2	1
Virginia [2]	68	7	7	20	0	0	45	32

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 10, 1935, and Aug. 11, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug 10, 1935	Week ended Aug 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934	Week ended Aug. 10, 1935	Week ended Aug 11, 1934	Week ended Aug. 10, 1935	Week ended Aug. 11, 1934
South Atlantic States—Contd.								
West Virginia [2]	6	4	21	17	0	0	26	32
North Carolina [2]	26	4	15	21	0	1	38	30
South Carolina [4]	4	2	5	2	0	0	20	31
Gerogia [4]	1	0	7		0	0	23	70
Florida [4]	2	1	3	1	0	0	1	1
East South Central States:								
Kentucky	15	0	15		0	0	86	28
Tennessee	1	1	7	12	0	0	71	81
Alabama [4]	1	3	5	14	0	0	13	28
Mississippi [3]	0	0	7	12	0	0	10	17
West South Central States:								
Arkansas	2	0		2	2	2	51	31
Louisiana	5	1	4	4	0	0	14	39
Oklahoma [5]	0	1	8	4	0	0	57	40
Texas [4]	1	5	40	20	3	1	57	57
Mountain States:								
Montana [2]	0	17	1	9	0	0	3	10
Idaho	0	5	4		0	0	0	0
Wyoming	0	0	4	2	0	0	1	0
Colorado	2	0	13	13	2	0	1	4
New Mexico	0	0			0	0	3	12
Arizona	0	4	1	4	0	0	1	3
Utah [3]	0	0	13		0	1	0	1
Pacific States:								
Washington	1	45	18	15	5	2	0	2
Oregon [2]	0	3	17	20	1	1	3	2
California	20	107	53	65	4	1	9	17
Total	486	299	878	885	33	15	732	956
First 32 weeks of year	2,801	3,730	179,431	147,246	5,290	3,726	8,519	10,280

[1] New York City on' .
[2] Rocky Mountain spotted fever, week ended Aug. 10, 1935, 17 cases, as follows. North Dakota, 1; Maryland, 5; Virginia, 4; West Virginia, 4; North Carolina, 1, Montana, 1; Oregon, 1.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended Aug. 10, 1935, 58 cases, as follows South Carolina, 2; Georgia, 19; Florida, 1; Alabama, 24, Texas, 12.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July 1935										
Arkansas		8	8	385	10	106		8	2	56
Connecticut	3	39	3	1	598		13	87	0	4
District of Columbia	13	68	2		41	2	14	26	0	
Indiana	7	41	48	8	89		2	89	7	28
Iowa	10	25	3	3	68		1	94	26	7
Missouri	10	84	89	427	161	2	4	71	1	104
North Carolina	8	43	3		54	151	229	73	2	170
Vermont		1			187		0	16	0	1

July 1935

	Cases
Chicken pox:	
Arkansas	38
Connecticut	208
District of Columbia	18
Indiana	24
Iowa	56
Missouri	45
North Carolina	35
Vermont	36
Conjunctivitis, infectious:	
Connecticut	12
Dysentery:	
Arkansas (bacillary)	1
Connecticut (bacillary)	1
Missouri	58
Epidemic encephalitis:	
District of Columbia	1
Indiana	1
Missouri	6
German measles:	
Connecticut	125
Iowa	7
North Carolina	13
Vermont	236
Impetigo contagiosa:	
Iowa	2
Lead poisoning:	
Connecticut	1

July 1935—Continued

	Cases
Mumps:	
Arkansas	35
Connecticut	69
Indiana	33
Iowa	110
Missouri	131
Vermont	39
Ophthalmia neonatorum:	
Connecticut	1
North Carolina	1
Paratyphoid fever:	
Connecticut	2
North Carolina	12
Rabies in animals:	
Indiana	91
Missouri	2
Rocky Mountain spotted fever:	
District of Columbia	2
Iowa	3
North Carolina	5
Septic sore throat:	
Connecticut	9
Missouri	30
North Carolina	10
Tetanus:	
Connecticut	2
Missouri	2

July 1935—Continued

	Cases
Trachoma:	
Arkansas	18
Connecticut	1
Missouri	8
Trichinosis:	
Connecticut	2
Tularaemia:	
Arkansas	5
District of Columbia	1
Missouri	3
North Carolina	1
Typhus fever:	
Missouri	1
North Carolina	4
Undulant fever:	
Connecticut	4
District of Columbia	10
Iowa	13
Missouri	6
North Carolina	3
Vermont	1
Whooping cough:	
Arkansas	75
Connecticut	164
District of Columbia	26
Indiana	146
Iowa	89
Missouri	239
North Carolina	699
Vermont	125

PLAGUE-INFECTED GROUND SQUIRREL IN LASSEN COUNTY, CALIF.

The Director of Public Health of California has reported one plague-infected ground squirrel received at the laboratory on July 11, 1935, from a ranch in Lassen County, Calif., 14 miles east and 10 miles south of Adin.

WEEKLY REPORTS FROM CITIES

City reports for week ended Aug. 3, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purposes of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
		Cases	Deaths								
Maine:											
Portland	0		0	1	0	0	0	0	0	8	19
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	7
Manchester	0		0	0	0	0	0	0	0	0	11
Nashua	0			0		0	0	0	0	0	
Vermont:											
Barre											
Burlington	0			0		0	0		0	0	5
Rutland	0		0		0	3	0	0	0	4	4
Massachusetts:											
Boston	5		1	13	5	8	0	6	3	18	166
Fall River	0		0	0	2	0	0	0	1	1	22
Springfield	0		0	11	0	1	0	0	0	0	33
Worcester	0			0	2	6	0	2	0	6	
Rhode Island:											
Pawtucket	0			0		0	0		0	0	9
Providence	2		0	19	1	2	0	1	0	3	45
Connecticut:											
Bridgeport	0		0	8	2	3	0	1	0	2	21
Hartford	0		0	0	0	0	0	0	0	15	23
New Haven	0	1	0	1	0	0	0	1	0	0	15
New York:											
Buffalo	1		0	4	3	12	0	8	0	13	115
New York	16	1	2	174	51	22	0	71	6	159	1,176

City reports for week ended Aug. 3, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
		Cases	Deaths								
New York—Con.											
Rochester	0	------	0	2	2	1	0	1	0	5	54
Syracuse	0	------	0	34	1	3	0	1	0	10	46
New Jersey:											
Camden	0	1	0	1	1	0	0	1	1	1	10
Newark	0	------	0	5	0	1	0	0	0	49	70
Trenton	0	------	0	0	0	0	0	2	0	0	26
Pennsylvania:											
Philadelphia	5	1	1	10	10	10	0	20	5	86	375
Pittsburgh	2	1	1	10	6	18	0	8	2	59	130
Reading	0	------	0	4	1	1	0	0	0	1	20
Ohio:											
Cincinnati	1	------	0	0	6	0	0	1	4	2	104
Cleveland	3	1	0	36	3	8	0	12	1	65	148
Columbus	2	1	1	0	5	3	0	5	2	6	85
Toledo	1	------	0	7	1	6	0	1	0	20	48
Indiana:											
Anderson	0	------	0	0	0	0	0	0	0	3	7
Fort Wayne	0	------	0	0	0	0	0	0	0	0	21
Indianapolis	1	------	0	4	14	1	0	3	14	16	99
South Bend	0	------	0	0	0	0	0	0	0	0	12
Terre Haute	0	------	0	0	0	0	0	0	1	0	15
Illinois:											
Alton	0	------	0	0	0	0	0	0	0	1	7
Chicago	14	------	2	45	29	58	0	44	1	153	647
Elgin	0	------	0	0	0	0	0	0	0	12	9
Moline	0	------	0	0	1	1	0	0	0	0	9
Springfield	0	------	0	2	1	0	0	0	0	5	19
Michigan:											
Detroit	0	2	0	10	11	13	0	18	4	167	143
Flint	0	------	0	2	2	2	0	0	0	11	16
Grand Rapids	0	------	0	8	1	3	0	0	0	24	25
Wisconsin:											
Kenosha	0	------	0	0	0	0	0	0	0	8	6
Milwaukee	0	------	0	53	1	3	0	4	0	72	80
Racine	0	------	0	4	1	7	0	1	0	15	10
Superior	0	------	0	0	0	0	0	0	0	7	8
Minnesota:											
Duluth	0	------	0	0	1	4	0	0	0	2	21
Minneapolis	1	------	0	2	1	8	0	2	16	1	92
St. Paul	0	------	0	4	2	2	0	2	1	2	73
Iowa											
Cedar Rapids	0	------	------	0	------	0	0	------	0	3	------
Davenport	0	------	------	1	------	0	0	------	0	0	------
Des Moines	0	------	------	1	------	0	0	------	0	0	36
Sioux City	0	------	------	0	------	0	1	------	0	2	------
Waterloo	0	------	------	0	------	0	0	------	0	2	------
Missouri:											
Kansas City	3	------	0	1	4	2	0	4	1	8	104
St. Joseph	0	------	0	0	1	0	0	3	0	1	26
St. Louis	6	------	0	4	[illegible]	1	0	12	11	13	237
North Dakota:											
Fargo	0	------	0	0	1	0	0	1	1	2	6
Grand Forks	0	------	0	1	0	0	0	0	0	0	------
Minot	0	------	------	0	------	0	0	------	0	0	9
South Dakota:											
Aberdeen	0	------	------	2	------	0	0	------	0	0	------
Nebraska: Omaha	0	------	0	2	1	1	0	3	0	1	87
Kansas:											
Lawrence	0	------	0	0	3	0	0	0	0	0	5
Topeka	0	------	0	1	2	1	0	0	1	6	10
Wichita	0	------	0	0	1	0	0	1	0	3	30
Delaware:											
Wilmington	1	------	0	0	0	0	0	1	1	2	16
Maryland:											
Baltimore	1	1	0	0	11	5	0	16	0	27	187
Cumberland	0	------	0	0	0	0	0	0	0	0	14
Frederick	1	------	0	0	0	0	0	0	0	0	4
District of Columbia:											
Washington	8	------	0	3	5	4	0	12	3	4	104
Virginia:											
Lynchburg	0	------	0	0	0	0	0	0	2	16	7
Norfolk	0	------	0	0	0	0	0	3	7	0	26
Richmond	0	------	1	0	5	0	0	2	1	0	46
Roanoke	1	------	1	0	1	0	0	0	1	1	16

City reports for week ended Aug. 3, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
		Cases	Deaths								
West Virginia:											
Charleston	2			0		0	0		2	0	5
Wheeling	0		0	0	0	1	0	0	0	2	19
North Carolina											
Gastonia	0		0	0	0	0	0	0	0	0	10
Raleigh											
Wilmington	0		0	0	0	1	0	0	1	2	16
Winston Salem	0		0	0	1	0	0	0	1	3	13
South Carolina:											
Charleston	0	2	0	0	0	0	0	0	0	0	23
Columbia											
Florence	0			0		0	0		1	1	7
Greenville	0		0	0	2	0	0	0	0	0	14
Georgia											
Atlanta	1		0	0	3	3	0	8	1	1	77
Brunswick	0		0	0	0	0	0	0	0	0	2
Savannah	0		0	0	1	2	0	3	1	0	38
Florida											
Miami	0		0	0	2	0	0	1	1	0	27
Tampa	3		0	0	1	1	0	0	0	2	23
Kentucky.											
Ashland	0		0	1	0	1	0	0	1	0	
Covington	1		0	0	0	0	0	0	0	0	11
Lexington	0		0	0	2	0	0	3	0	0	18
Louisville	2		1	0	1	11	0	1	3	23	70
Tennessee.											
Knoxville	0		0	0	0	0	0	0	6	0	29
Memphis	1		0	0	2	0	0	4	3	8	79
Nashville	1		0	1	2	0	0	2	3	2	49
Alabama.											
Birmingham	0		1	5	1	2	0	4	1	0	81
Mobile	0		0	0	0	0	0	0	0	0	15
Montgomery	0			0		0	0		0	0	
Arkansas:											
Fort Smith	0			0		0	0		3	0	
Little Rock	0			1		1	0	1	0	0	
Louisiana:											
Lake Charles	0		0	0	1	0	0	2	0	1	10
New Orleans	0		0	3	3	5	0	12	0	0	130
Shreveport	1		0	0	4	0	0	1	2	0	37
Oklahoma.											
Oklahoma City	0		0	2	4	0	0	2	3	4	42
Texas.											
Dallas	3		0	0	3	5	0	3	2	0	59
Fort Worth	1		0	0	2	0	0	1	0	1	33
Galveston	0		0	0	0	3	0	2	0	0	14
Houston	4		0	0	3	2	0	2	1	0	56
San Antonio	2		0	0	4	2	0	5	1	0	57
Montana.											
Billings	0		0	0	0	0	0	1	0	1	13
Great Falls	0		0	0	0	0	0	0	1	4	7
Helena	0		0	1	0	0	0	0	0	1	2
Missoula	0		0	0	0	0	0	0	0	0	7
Idaho:											
Boise	0		0	0	0	0	0	0	0	0	9
Colorado:											
Colorado Springs	0		0	2	0	2	0	1	1	2	6
Denver	8		0	5	1	5	0	5	3	6	76
Pueblo	0		0	0	0	0	0	0	0	0	9
New Mexico:											
Albuquerque	0		0	0	0	0	0	4	0	0	14
Utah:											
Salt Lake City	0		0	0	5	9	0	1	0	25	41
Nevada:											
Reno	0		0	0	0	0	0	0	0	0	2
Washington:											
Seattle	0		2	6	1	2	0	3	0	4	73
Spokane	0		0	2	1	0	0	1	0	4	34
Tacoma	0		0	0	1	0	1	1	0	0	27
Oregon:											
Portland	0		0	11	3	3	0	1	0	5	73
Salem	0			0		0	0		0	1	
California:											
Los Angeles	9	8	0	17	10	9	2	23	1	18	277
Sacramento	0		0	4	0	4	0	5	0	1	27
San Francisco	0	1	0	33	6	5	0	9	2	9	170

City reports for week ended Aug. 3, 1935—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	1	1	22
Fall River	0	0	4
Springfield	1	1	1
Rhode Island:			
Providence	0	0	6
Connecticut:			
Bridgeport	0	0	1
New Haven	1	0	0
New York:			
New York	9	4	88
Rochester	1	0	0
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	0	0	6
Reading	1	0	0
Ohio:			
Cincinnati	2	1	0
Cleveland	3	1	0
Indiana:			
Indianapolis	1	0	0
Terre Haute	0	1	0
Illinois:			
Chicago	5	3	4
Michigan:			
Detroit	1	0	1
Flint	0	0	3
Wisconsin:			
Racine	0	0	1
Iowa:			
Sioux City	1		0
Missouri:			
St. Louis	2	0	2
Nebraska:			
Omaha	1	1	0
Kansas:			
Topeka	0	0	1
Maryland:			
Baltimore	0	3	6
District of Columbia:			
Washington	5	4	7
Virginia:			
Lynchburg	0	0	2
Richmond	0	0	11
Roanoke	0	0	7
West Virginia:			
Charleston	0	0	1
Kentucky:			
Ashland	1		0
Louisville	1	0	4
Tennessee:			
Knoxville	1	0	0
Colorado:			
Denver	0	0	1
Washington:			
Spokane	1	0	1
Oregon:			
Portland	2	1	0
California:			
Los Angeles	0	1	5
Sacramento	0	0	3
San Francisco	1	0	0

Dengue: Atlanta, 1 case.

Epidemic encephalitis.—Cases: Cleveland, 1; Indianapolis, 3; Kansas City, Mo., 1; St. Louis, 1.

Pellagra.—Cases: Washington, 2; Winston-Salem, 1; Charleston, S. C., 1; Memphis, 2; Dallas, 2; Los Angeles, 2, San Francisco, 4.

Typhus fever.—Cases: Wilmington, N. C., 1; Savannah, 2; Mobile, 1; Montgomery, 2; Houston, 1.

FCREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended July 13, 1935.—During the 2 weeks ended July 13, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2	1					3
Chicken pox			1	108	391	45	97	5	93	740
Diphtheria		1		34	13	5	5			58
Dysentery				4	1					5
Erysipelas		2		7	5	3			1	18
Influenza		3	2			2				7
Lethargic encephalitis			1							1
Measles		10	28	388	2,955	139	359	28	259	4,166
Mumps		14			216	60	8		5	303
Paratyphoid fever					1					1
Pneumonia		1			9		3		7	20
Poliomyelitis				2	1			1		4
Scarlet fever	1	31	7	162	210	31	23	6	20	491
Smallpox					2					2
Trachoma							1			1
Tuberculosis	8	49	26	152	105	32	1	4	19	396
Typhoid fever			3	37	8		3	2	6	59
Undulant fever					1		1			2
Whooping cough		29	9	73	317	41	97		53	619

NOTE No report was received from Alberta for the week ended July 6, 1935.

ITALY

Communicable diseases—4 weeks ended June 23, 1935.—During the 4 weeks ended June 23, 1935, cases of certain communicable diseases were reported in Italy as follows:

Disease	May 27–June 2		June 3–9		June 10–16		June 17–23	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	20	19	11	10	27	26	14	13
Cerebrospinal meningitis	18	15	12	11	15	13	12	12
Chicken pox	426	182	542	177	477	201	353	153
Diphtheria and croup	445	227	362	195	362	179	312	168
Dysentery	8	4	4	4	8	8	15	9
Hookworm disease	11	6	40	8	16	11	18	9
Lethargic encephalitis	5	5	3	3			1	1
Measles	2,760	457	2,546	445	2,292	449	2,099	396
Paratyphoid fever	47	34	53	41	47	36	73	54
Poliomyelitis	8	7	6	6	14	12	23	14
Puerperal fever	30	30	40	35	27	27	38	36
Scarlet fever	356	129	388	130	314	117	327	103
Typhoid fever	280	138	247	147	233	143	418	158
Undulant fever	82	53	109	73	87	64	102	76
Whooping cough	267	99	438	117	342	103	416	121

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for July 26, 1935, pp. 967–983. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Aug. 30, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

India—Vizagapatam.—During the week ended August 3, 1935, 1 case of cholera was reported at Vizagapatam, India.

Siam—Smudsongram Province.—During the week ended August 3, 1935, 1 case of cholera was reported in the Province of Smudsongram, Siam.

Plague

Hawaii Territory—Maui Island—Makawao District—Kahului.—During the week ended August 3, 1935, 2 plague-infected rats were found about 9 miles from the port of Kahului, Makawao District, Maui Island, Hawaii Territory.

United States—California.—A report of 1 plague-infected ground squirrel in California will be found on page 1158 of this issue of PUBLIC HEALTH REPORTS.

Yellow fever

Colombia—Intendencia of Meta—Restrepo.—During the week ended July 20, 1935, 1 fatal case of the jungle type of yellow fever was reported at Restrepo, Intendencia of Meta, Colombia.

Gold Coast—Cape Coast.—On August 6, 1935, 1 fatal case of yellow fever was reported at Cape Coast, Gold Coast.

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

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PUBLIC HEALTH REPORTS

VOL. 50 **AUGUST 30, 1935** **NO. 35**

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

July 14–August 10, 1935

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Poliomyelitis.—For the 4 weeks ended August 10, 1935, a total of 1,433 cases of poliomyelitis were reported. (For the next week ended Aug. 17, 723 cases were reported.) The 1,433 cases for the 4-week period under report was more than twice the number for the preceding 4 weeks. With respect to preceding years, the number of cases for the current period was 38 percent above that for the corresponding period of 1934, when the disease was epidemic in California and the West, more than twice the figure for 1933, and more than three times that for 1932, but amounted to only about half of the 2,974 cases for this period in 1931 when the disease was epidemic in the eastern part of the United States.

Table 1 shows for each State the number of cases reported during the 16 weeks since the increased incidence began, with comparative figures for the corresponding periods of 3 preceding years; it includes also the weekly numbers of cases in each State during the summer of 1935.

The epidemic is confined largely to the Atlantic seaboard States. Of the 3,118 cases reported during the 16 weeks ended August 17, North Carolina, Virginia, New York, and Massachusetts reported 1,955, or about two-thirds of the total for the country. During these 16 weeks, however, a number of other States reported more cases than in any of the 3 preceding years—New Hampshire (20), Rhode Island (32), Connecticut (88), Michigan (80), Maryland (26), District of Columbia (25), Iowa (14), Kentucky (77), Alabama (31), and Louisiana (55). In California 306 cases were reported during this 16-week

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports. These summaries include only the 8 important communicable diseases for which the Public Health Service receives regular weekly reports from the State health officers.

period, as compared with 43 and 54 cases for the same periods of 1933 and 1932, respectively; in 1934 poliomyelitis was epidemic in California and 2,521 cases were reported in the 16-week period.

In North Carolina, where the epidemic apparently started, the number of cases reported declined definitely during the 3 weeks ended August 17, and in Virginia the number of cases declined during the last 2 of these 3 weeks. In other States with more cases than usual for this season of the year the number for the last week available (Aug. 17) was higher than in any preceding week.

TABLE 1.—*Poliomyelitis cases reported in each State during recent weeks of 1935*

	16 weeks ended [1]				Cases reported in 1935 for week ended—						
	Aug. 20, 1932	Aug. 19, 1933	Aug. 18, 1934	Aug. 17, 1935	July 6	July 13	July 20	July 27	Aug. 3	Aug. 10	Aug. 17
All States [2]	910	1 290	[illegible] 716	3 118	156	191	229	298	418	488	723
New England											
Maine	12	9	6	11	1	0	0	0	2	1	6
New Hampshire	1	0	5	20	0	0	1	0	0	5	9
Vermont	0	1	4	0	0	0	0	0	0	0	0
Massachusetts	19	180	9	271	1	3	12	9	47	74	116
Rhode Island	3	7	1	32	1	1	2	1	7	8	12
Connecticut	14	14	5	88	0	2	3	5	10	22	43
Middle Atlantic											
New York	105	416	88	626	11	18	21	44	104	158	244
New Jersey	58	40	34	59	0	4	1	5	7	13	19
Pennsylvania	213	88	30	33	0	0	1	4	2	8	12
East North Central											
Ohio	35	55	63	24	1	0	1	6	1	1	9
Indiana	4	12	12	9	0	0	0	2	0	1	3
Illinois	61	63	70	56	2	5	2	4	10	13	13
Michigan	30	23	39	80	2	1	0	8	10	14	40
Wisconsin	20	7	14	14	1	2	1	1	0	1	1
West North Central											
Minnesota	33	60	22	12	1	0	0	0	1	0	4
Iowa	10	9	8	14	0	0	2	1	0	0	8
Missouri	4	15	10	11	1	1	2	0	2	1	2
North Dakota	14	16	0	1	0	0	0	0	0	0	1
South Dakota	3	11	15	1	1	0	0	0	0	0	0
Nebraska	5	1	3	1	0	0	0	0	0	0	0
Kansas	9	16	29	6	1	0	0	2	0	2	0
South Atlantic											
Delaware	0	5	0	2	0	0	1	0	0	1	0
Maryland	8	11	14	26	1	0	0	2	10	6	5
District of Columbia	3	1	4	25	0	3	1	6	7	4	4
Virginia	15	10	26	524	28	45	72	87	100	68	73
West Virginia	6	31	23	12	1	0	0	0	0	6	3
North Carolina	16	5	20	534	55	[illegible]	48	52	40	26	17
South Carolina	18	3	3	20	0	3	1	6	1	4	0
Georgia	5	0	9	11	0	0	1	2	1	1	1
Florida	0	4	9	10	[illegible]	0	0	1	0	2	1
East South Central											
Kentucky	11	11	29	77	0	0	5	10	18	15	27
Tennessee	11	57	14	46	5	11	3	9	10	1	3
Alabama	7	5	20	31	2	6	3	4	1	1	2
Mississippi	8	2	11	6	0	1	0	2	1	0	0
West South Central											
Arkansas	6	5	3	10	0	0	1	0	1	2	1
Louisiana	10	9	7	55	3	3	7	1	2	5	4
Oklahoma	9	2	5	7	1	0	0	0	0	0	0
Texas	38	23	48	20	2	1	1	1	3	1	1
Mountain [2]											
Montana	1	2	74	2	0	0	0	0	0	0	0
Idaho	0	1	67	1	0	0	0	0	0	0	0
Wyoming	[illegible]	4	1	0	0	0	0	0	0	0	0
Colorado	1	1	[illegible]	3	0	0	0	0	1	2	0
New Mexico	0	1	5	3	0	0	0	1	0	0	0
Arizona	1	1	43	4	0	0	0	0	0	0	1
Utah	1	2	4	3	0	0	0	1	0	0	2
Pacific											
Washington	21	9	219	8	0	0	0	0	0	1	1
Oregon	4	8	24	3	0	0	1	0	0	0	1
California	54	43	2 521	306	32	29	35	21	19	20	34

[1] See PUBLIC HEALTH REPORTS for Aug. 2, 1935, p. 986, for weekly data back to May 12, the approximate beginning of the increase in reported cases.
[2] Nevada excluded, no data.

Meningococcus meningitis.—The number of cases of meningococcus meningitis reported for the 4 weeks ended August 10 was 292, which is about 2.3 times last year's figure for the corresponding period and the highest for this period since 1930. A decrease in cases from the preceding 4-week period was reported from practically all sections of the country, but the numbers were still of sufficient size to maintain a level considerably above that of recent years. In the South Atlantic region the number of cases (48) was almost 5 times that of last year; in the West South Central section the number (14) was more than 3 times last year's figure; in the Middle Atlantic (74), East North Central (67), West North Central (30), and Pacific (21) areas the numbers were more than double those of last year. In the New England (13 cases), East South Central (18), and Mountain (7) regions the numbers of cases represented about 50-percent increases over last year's figures.

Smallpox.—The number of cases of smallpox reported for the current period was 209, as compared with 113, 200, and 307 for the corresponding period in the years 1934, 1933, and 1932, respectively. The incidence was still above the seasonal expectancy in the West North Central, Mountain, and Pacific regions, but other sections reported about the usual incidence for this time of the year. Montana, Wyoming, and Washington have been mostly responsible for the high incidence in the far western regions, while each State, except Missouri and North Dakota, has contributed to the high incidence in the West North Central area.

Typhoid fever.—During the 4 weeks ended August 10, 2,895 cases of typhoid fever were reported, as compared with 3,760 last year and 3,375 the year before. The number of cases reported for the current period represented a considerable increase over the preceding period (1,911 cases), but the incidence normally increases sharply at this season. For the country as a whole, as well as for each geographic area, the current incidence was the lowest in recent years. The decreases from last year's figures in the various areas range from 11 percent in the South Atlantic group of States to 35 percent in the East North Central section.

Scarlet fever.—A decrease in scarlet fever of approximately 5,400 cases occurred during the 4 weeks ended August 10, as compared with the preceding 4 weeks. However, the number of cases (4,351) was about 10 percent in excess of that for the corresponding period in each of the 2 preceding years. The figures for the New England, Middle Atlantic, and South Central regions dropped below those of last year, but all other sections maintained the high level for this disease which has prevailed in all parts of the country except the South Central area since the beginning of the current year.

Measles.—Measles declined rapidly in all sections of the country during the 4 weeks ended August 10. For the entire reporting area 11,576 cases were reported, as compared with approximately 41,000 for the preceding 4-week period. In relation to recent years the current incidence was only about 15 percent above that for the corresponding period of last year but was much higher than in other preceding years. The average number of cases for this period in the 5 preceding years was about 7,500.

Influenza.—The number of cases of influenza reported for the current 4-week period was 987. While the incidence was not particularly high in the North Central regions, the number of cases (204) for the East North Central represented an increase of about 20 percent over last year's figure, and that for the West North Central (108 cases) was more than 4 times last year's figure. Other regions reported fewer cases than last year. For this period in 1934 and 1933 the numbers of cases were 1,354 and 1,043, respectively.

Diphtheria.—During the current 4-week period the incidence of diphtheria stood at about the same level as in the corresponding period of 1934. For the country as a whole 1,476 cases were reported, as compared with 1,773 in 1933 and 2,170 in 1932. In the East North Central, South Atlantic, and South Central sections the disease was somewhat more prevalent than last year, while in other sections fewer cases were reported.

Deaths, all causes.—The death rate from all causes in large cities, as reported by the Bureau of the Census, for the 4 weeks ended August 10 was 10.0 per 1,000 inhabitants (annual basis). For the corresponding period in the years 1934, 1933, and 1932 the average rate was 10.5, 9.8, and 9.7, respectively.

THE NINTH PAN AMERICAN SANITARY CONFERENCE[1]

Held at Buenos Aires, Argentina, November 12–22, 1934

All of the American republics were represented at the Ninth Pan American Sanitary Conference, which met in Buenos Aires, Argentina, November 12–22, 1934, under the presidency of Dr. Gregorio Aráoz Alfaro, of Argentina. The inaugural session of the Conference was attended by His Excellency, Gen. Agustín P. Justo, President of the Republic of Argentina; His Excellency, the Minister of the Interior, Dr. Leopoldo Melo; His Excellency, the Minister of Foreign Relations and Public Worship, Dr. Carlos Saavedra Lamas; and by other high officials of the national and local governments, together with members

[1] The Pan American Sanitary Conferences and their executive organ, the Pan American Sanitary Bureau, were created in 1902 under authority granted by a series of resolutions adopted by the Second International Conference of American States. See the following report of the director of the Pan American Sanitary Bureau for a brief history of the conferences.

of the Diplomatic Corps and many distinguished persons from other countries. His Excellency, Dr. Carlos Saavedra Lamas, presided.

Following are the names of the official delegates and the representatives of other international organizations who were present and participated in the conference:

Argentina:	Dr. Gregorio Aráoz Alfaro, Dr. Miguel Sussini, Dr. Juan M. Obarrio, Dr. Bernardo Houssay, Dr. Pedro Baliña, Dr. Alberto Zwanck, Dr. Raúl Vaccarezza, Dr. Alfredo Sordelli, Dr. Manuel I. Battaglia.
Bolivia:	Dr. Casto Rojas.
Brazil:	Dr. Sérvulo Lima, Dr. Orlando Roças.
Chile:	Dr. Sotero del Río, Dr. Eugenio Suárez, Dr. Víctor Grossi, Dr. Waldemar Coutts.
Colombia:	Dr. Jorge Bejarano, Dr. Lucio García.
Costa Rica:	Dr. Solón Núñez.
Cuba:	Dr. Domingo Ramos.
Dominican Republic:	Dr. Max Henríquez Ureña, Dr. Osvaldo Loudet.
Ecuador:	Dr. Juan José Samaniego.
Guatemala:	Dr. Manuel Arroyo.
Haiti:	Dr. Horacio Rubio.
Honduras:	Dr. Manuel F. Rodríguez.
Mexico:	Dr. Francisco de P. Miranda, Dr. Francisco Vázquez Pérez.
Nicaragua:	Dr. Rubén Darío.
Panama:	Dr. Pablo B. Oscamou.
Paraguay:	Dr. Cayetano Masi, Dr. Andrés Gubetich.
Peru:	Dr. Carlos Monge, Dr. Carlos Enrique Paz Soldán, Dr. Luis Vargas Prada.
Salvador:	Dr. Villegas Muñoz.
United States:	Dr. Hugh S. Cumming, Dr. Bolivar J. Lloyd, Dr. Kendall Emerson.
Uruguay:	Dr. Justo F. González, Dr. Javier Gomensoro, Dr. Rafael Schiaffino.
Venezuela:	Dr. Carlos Diez del Ciervo.

Dr. John D. Long, traveling representative of the Pan American Sanitary Bureau; Dr. M. T. Morgan, invited as a representative of the International Office of Public Health of Paris; Dr. Frank Boudreau, invited as a representative of the health section of the League of Nations; and Dr. Fred L. Soper, invited as a representative of the Rockefeller Foundation.

The Ninth Pan American Sanitary Conference adopted a number of important motions, resolutions, and conventions, which have already been published in a summary of the proceedings (Acta Final—Spanish).

Following is a brief résumé of these dispositions:

1. *The Pan American sanitary code.*—Resolutions of interpretation were adopted (*a*) exempting airships from carrying bills of health, provided satisfactory data are recorded in the craft's journey log book, (*b*) obviating the necessity of sending telegraphic reports of certain communicable diseases after the first cases have been notified, (*c*) accepting as valid methods of deratization other than fumigation,

and (*d*) authorizing exemption certificates for vessels found not to be in need of deratization services.

2. *Aerial navigation.*—The conference recommended that American governments should adhere to and ratify the International Sanitary Convention for Aerial Navigation signed at The Hague, April 12, 1933, and enjoined sanitary authorities to follow closely any occurrences of sanitary significance with reference to aerial transportation, reporting such to the Pan American Sanitary Bureau.

3. *Sanitary convention of Paris.*—Recommended adhesion to and ratification of the International Sanitary Convention of Paris of 1926.

4. *Demography.*—The conference (*a*) reiterated its adherence to the standards already set forth with regard to the classification of causes of death; (*b*) declared that systems for the reporting of vital statistics should be implanted and improved in both urban and rural communities; (*c*) recommended that medical practitioners be enjoined to exercise care in reporting the immediate and remote causes of death; (*d*) suggested certain procedures for collecting and reporting vital statistics; and (*e*) urged upon American governments the importance of reporting contagious diseases and other matters relating to vital statistics.

5. *Public health appropriations.*—The conference recommended that public health appropriations be increased.

6. *Coordination of relief agencies.*—Recommended that public and private relief measures and activities relating to charities and public health be placed under a single supervisory authority.

7. *Aerial medical service.*—Recommended the establishment of aviation relief services for the relief of persons in places not easily accessible by other means of transportation.

8. *Typhus and allied fevers.*—Authorized a vote of thanks to investigators in various American republics for their recent valuable discoveries in this group of communicable diseases.

9. *Graded promotions and tenure of office.*—Recommended permanent tenures and graded promotions in public health services.

10. *Coordination of sanitary activities.*—Recommended that all sanitary activities, including those of private institutions, be coordinated and brought under one supervisory authority.

11. *Pan American scientific institutions.*—The conference resolved to authorize the Pan American Sanitary Bureau to fix the standards and establish the conditions under which certain scientific bodies might be registered as "Pan American" institutions of scientific research, sanitary instruction, and institutions for the standardization of products for diagnostic and therapeutic application.

12. *Yellow fever.*—The conference adopted the following recommendations with regard to yellow fever: (*a*) Determination of the

geographic distribution of yellow fever in recent years by means of serum protection tests; (*b*) examination of liver specimens through the process of viscerotomy in suspected yellow fever deaths; (*c*) creation of permanent antilarval services in ports and cities in tropical America; (*d*) creation of such services in all infected localities and adjacent regions; (*e*) adoption of regulations for the eradication of yellow fever similar to those in force in Brazil, Bolivia, and Paraguay; (*f*) immunization against yellow fever of susceptible persons passing through or coming from endemic regions where yellow fever exists; and (*g*) creation of special laboratories for the study of yellow fever.

A special vote of thanks was accorded Dr. Fred L. Soper, of the Rockefeller Foundation, for his authoritative report on yellow fever.

13. *Bloodsucking insects.*—The conference recommended investigations for the purpose of determining the geographic distribution of bloodsucking vectors of disease.

14. *Malaria.*—Recommended the creation and maintenance of centers of experimentation and research in connection with malaria.

15. *Hookworm disease.*—The conference expressed to the Rockefeller Foundation its gratitude for its contribution to the work of combating ancylostomiasis in the Americas, and urged that governments continue their campaigns of eradication of this disease.

16. *Rural health units.*—The conference recommended the establishment of administrative health centers for rural populations.

17. *Leprosy.*—Recommended (*a*) that measures for combating leprosy should be kept in the hands of qualified experts; (*b*) that control measures should be placed under a central administrative agency; (*c*) that there should be international cooperation in combating leprosy; and (*d*) that isolation of persons suffering from leprosy should be in adequate institutions or in the home.

Attention was invited to the fact that there is no danger in locating leprosariums near cities.

Governments were urged to adopt laws prohibiting marriage between lepers and nonlepers.

18. *Plague.*—A vote of applause was accorded the Pan American Sanitary Bureau, and in particular to its traveling representative, Dr. John D. Long, for the results of his antiplague campaigns, and it was urged that the American governments continue to strengthen their campaigns against this disease.

The conference affirmed that an investigation is necessary regarding the time that infected fleas may live hidden in merchandise, and suggested that the best way to solve this problem would be the carrying out of a joint investigation by the Pan American Sanitary Bureau and the International Office of Public Health of Paris.

Satisfaction was also expressed with the results obtained by the Governments of Peru and Ecuador in their efforts to eradicate plague.

19. *Vote of applause to the Government of Chile.*—The conference authorized a vote of applause to the Government of Chile for having been able to prevent the spread of typhus fever from Chile to other countries.

20. *Undulant fever*—After extending a vote of gratitude to Pan American investigators who have contributed to the study and elucidation of undulant fever, the conference adopted the following recommendations: (*a*) The intensification of the studies of undulant fever; (*b*) the diffusion of information relating to methods and technique in diagnosis; (*c*) the obligatory reporting of the disease in man and animals; (*d*) the recognition of undulant fever as an occupational disease (under certain circumstances), and the enactment of industrial legislation in connection therewith; (*e*) the dissemination of popular information regarding the dangers of undulant fever and the manner in which it is propagated; (*f*) the identification of strains of undulant fever in both wild and domestic animals; (*g*) the study of the prophylaxis of this disease in animals, in order to be better able to protect man; (*h*) the adoption of uniform plans for combating undulant fever; (*i*) prohibition of the sale of vaccines containing living germs except under governmental supervision and the prohibition of the use of such vaccine in zones that are free from undulant fever, except under governmental supervision; (*j*) the adoption of measures to prevent the spread of the disease by milk and milk products from infected animals; (*k*) the adoption of measures to protect those employed in handling infected animals or their carcasses by vaccination; and (*l*) the inclusion of undulant fever in the topics to be discussed by the Tenth Pan American Sanitary Conference.

21. *Univaccination against smallpox.*—A proposal submitted by the delegation of Brazil, recommending a single vaccination during the lifetime of an individual as a protection against smallpox, was deemed to require further study.

22. *Snake bite.*—The conference recommended (*a*) the furnishing of antisera to workmen in infested regions and (*b*) the study of the geographic distribution and of the biology of snakes, spiders, and scorpions, and of the pharmacology and immunology of their poisons, the results accomplished to be reported to the Tenth Pan American Sanitary Conference.

23. *Life in high altitudes.*—The conference recommended the establishment of special institutions for studying human life in elevated regions, the results of such studies to be communicated to all American countries through the agency of the Pan American Sanitary Bureau.

24. *Reporting pregnancy.*—The conference recommended as one means of protecting mother and child the expediency of procuring

by persuasive measures the early reporting of pregnancy to the maternal welfare sections of departments of health.

25. *Infant mortality.*—Recommended that the campaign against infant mortality be intensified, and that health centers should be established in rural districts, providing free medical services, including the services of midwives and visiting nurses.

26. *Uruguayan child welfare code.*—The conference authorized a vote of applause to the Government of Uruguay for having sanctioned a child welfare code.

27. *Care of pre-school children.*—The conference recommended the coordination of organized relief and education for the child from 2 to 6 years old and suggested the expediency of forming parents' organizations by means of which modern scientific information might be applied in the development of pre-school children.

28. *School hygiene.*—The conference recommended (*a*) that school hygiene be coordinated with other welfare services in such manner that these may be a continuation of infant and pre-school child welfare, and (*b*) that school medical services be based on education in disease prevention, periodical examinations, prophylactic treatment, and general education in hygiene, the object being to obtain for all children of school age early, continuous, and adequate medical services.

29. *BCG.*—The conference (*a*) approved the policy enunciated by Dr. Kendall Emerson (one of the delegates of the United States), which reads as follows: "In spite of the very encouraging results reported from its use in American countries, the use of Calmette's vaccine should, for the time being, be restricted to those cases in which for special reasons the vaccine promises the only, or at least the greatest, probability of giving protection"; (*b*) voted to make the use of BCG a topic for consideration by the Tenth Pan American Sanitary Conference.

30. *Campaign against tuberculosis.*—The conference recommended to American governments that campaigns against tuberculosis should be entrusted to a central directing agency, technically competent, autonomous, and provided with sufficient funds to guide, conduct, and direct efficiently all such campaigns, coordinating the activities of national, local, and private agencies.

31. *Campaign against venereal diseases.*—The conference resolved (*a*) to recommend the intensification of campaigns of popular education with regard to venereal diseases; (*b*) to recommend that all general clinics for the prevention of disease maintain services for venereal diseases, and that the treatment of such diseases be carried out in all clinics of whatever nature; (*c*) to recommend the enactment of laws for the prevention of venereal diseases; (*d*) to recommend the lowering of the cost of antisyphilitic remedies by every means possible, and the

gratuitous distribution of such remedies; (*e*) to recommend the establishment of prenuptial centers and clinics as a part of the campaign against venereal diseases; (*f*) to recommend the study of lymphogranuloma inguinale; (*g*) to recommend that documents issued in connection with the supervision of prostitution be not offensive in character; (*h*) to recommend that countries affiliated with the Pan American Union, which have not yet taken such action, ratify the convention of Brussels of 1924 relative to the treatment of sailors affected with venereal diseases.

32. *Narcotics.*—The Conference recommended that the results produced in America by the enforcement of the several international agreements regarding narcotics be followed with the greatest care.

33. *Food and drugs.*—Recommended that the Pan American Sanitary Bureau undertake partial and progressive studies of standards for foods and drugs, and appoint, if expedient, a commission of experts to make these studies, reporting to the next Pan American sanitary conference.

34. *Proprietary and patent medicines.*—Recommended the passage of laws requiring governmental regulation and supervision of the manufacture, sale, and distribution of proprietary remedies, patent medicines, biologic products, etc.

35. *Pharmacopoeias.*—Recommended that steps be taken gradually to bring about the unification of the pharmacopoeias of the American republics.

36. *Campaign against alcohol.*—Recommended educational work in schools as a means of combating alcoholism, and also the substitution of alcoholic beverages of good quality for others known to be pernicious. Public authorities were enjoined to prevent the use of alcoholic beverages in the alimentation of children.

37. *Alimentation.*—The conference resolved (*a*) to recommend to the departments of health of the American republics that they create institutions or divisions charged with the duty of determining the composition and the nutritive value of foods produced in each country and also the duty of studying the sources, processing, and distribution of foods, (*b*) to recommend that the principles of nutrition be taught in the schools, and (*c*) that the Pan American Sanitary Bureau aid in disseminating information relative to the problems of nutrition.

38. *Milk.*—The conference adopted the proposal of the delegation of Argentina relating to safe milk supplies, and approved the following recommendations: (*a*) The enactment of ordinances requiring the pasteurization of milk; (*b*) the enactment of ordinances encouraging the production and use of certified milk; (*c*) the adoption of measures to improve the hygienic conditions of dairies; and (*d*) the fostering by State and Federal governments of the production of safe milk in places where there is none, and, where the supply is insufficient, the facilitation of transportation of milk from areas of greater production.

39. *Public health education.*—The conference recommended that the principles of hygiene should be taught in public schools and other institutions of learning.

40. *Industrial hygiene.*—Recommended as a topic for the next conference a study of labor and sanitary conditions therein throughout the Americas.

41. *South American Public Health Association.*—The conference approved the efforts which are being made to form a South American Public Health Association.

42. *Constitution and statutes of the Pan American Sanitary Bureau.*—The conference approved the constitution and statutes of the Pan American Sanitary Bureau.

Since 1920 the activities of the Pan American Sanitary Bureau, the executive organ of the Pan American sanitary conferences, have been conducted by Surgeon General Hugh S. Cumming, of the United States Public Health Service. Dr. Cumming was elected for a fourth term by the ninth conference. Dr. Jorge Bejarano, of Colombia, was elected president of the Tenth Pan American Sanitary Conference to be held at Bogotá. At the same time the other personnel of the directing council were selected. This body as now constituted consists of the following officers, members, and alternates:

Honorary director: Dr. Gregorio Aráoz Alfaro, Buenos Aires, Argentina.
Director: Dr. Hugh S. Cumming, Washington, D. C., United States of America.
Vice Director: Dr. Carlos E. Paz Soldán, Lima, Perú.
Alternate: Dr. Carlos Monge, Lima, Perú.
Secretary, Dr. Justo F. Gonzáles, Montevideo, Uruguay.
Alternate: Dr. Rafael Schiaffino, Montevideo, Uruguay.
Member: Dr. Solón Núñez, San José, Costa Rica.
Alternate: Dr. Rubén Umaña, San José, Costa Rica.
Member: Dr. Francisco de P. Miranda, México, D. F., México.
Alternate: Dr. Miguel Bustamante, México, D. F., México.
Member: Dr. Carlos Diez del Ciervo, Caracas, Venezuela.
Alternate: Dr. Jesús Rafael Rísquez, Caracas, Venezuela.
Member: Dr. Waldemar Coutts, Santiago, Chile.
Alternate: Dr. Víctor Grossi, Valparaiso, Chile.

REPORT OF DR. HUGH S. CUMMING, DIRECTOR OF THE PAN AMERICAN SANITARY BUREAU, TO THE NINTH PAN AMERICAN SANITARY CONFERENCE[1]

It is a pleasure for me to meet with you, my colleagues from other Republics, and render to you an account of my stewardship as director of your executive organ, the Pan American Sanitary Bureau.

I deeply regret to report to you the death of two of the most beloved members of our directing council, Dr. Mario G. Lebredo, of

[1] Presented at Buenos Aires, Argentina, Nov. 12, 1934.

Habana, Cuba, vice director, and Dr. João Pedro de Albuquerque, of Rio de Janeiro, Brazil, a most distinguished member. It is not alone that I grieve for these men as personal friends; I have sadly missed the advice and counsel I was accustomed to receive from them in connection with our activities.

It is with profound satisfaction that I am able to report to you that the prospects for rendering effective service by the Bureau were never brighter; and it is most gratifying to observe that, in spite of a financial crisis that has affected the entire world, the nations of this continent have, with few exceptions, been able to continue their financial support of our activities. It is true, of course, that the quotas are relatively small in relation to our potentialities for service, but they are sufficient for our present needs.

You will recall that 14 years ago, when the Sixth Pan American Sanitary Conference, at Montevideo, honored me by electing me as director, the Pan American Sanitary Bureau existed in name only. Today, it is not too much to say, I think, that its influence is felt not only throughout the Americas, but in the Eastern Hemisphere as well. It should be remembered, however, that our resources are, for the time being, limited; and we should not, in my judgment, be tempted to dissipate our efforts by engaging in enterprises for which we do not have adequate funds, or, which are not germane to the purposes for which the Pan American Sanitary Conferences and the Pan American Sanitary Bureau were created. Better a slow, constant, healthy expansion than a sudden mushroom-like growth that might be followed by financial embarrassment and the curtailment of useful activities already well established.

Let us recall at this time, very briefly, the history of the development of Pan American cooperation in matters relating to the public health. To such statesmen as San Martin and Simon Bolivar is due the credit of having initiated Pan Americanism. Argentina, Brazil and Uruguay inaugurated Pan American cooperation in public health by adopting the sanitary convention of Rio de Janeiro in 1887. This movement was followed a few months later by a similar agreement entered into by Bolivia, Chile, Ecuador, and Peru, in the sanitary convention signed in Lima, in 1888.

In 1889 there assembled in Washington the First International Conference of American States, which body effected permanent organization by providing for the calling of subsequent conferences and creating as its executive organ the Bureau of American Republics, now the Pan American Union, with which the Pan American Sanitary Bureau closely cooperates. At the time that this first conference met, quarantinable diseases, particularly yellow fever, formed, perhaps, its most vexing and difficult problem. A quarantine committee was appointed to study disease conditions and formulate sanitary regula-

tions. Little was accomplished other than to recommend the adoption of the sanitary conventions of Rio de Janeiro and Lima.

In 1901 the Second International Conference of American States met in Mexico City, and its members were confronted by virtually the same public health problems as were presented to the first conference in 1889. This second conference, realizing that problems of health and sanitation might best be dealt with by physicians trained in public health work, adopted resolutions authorizing the creation of international sanitary conferences, and, as their executive organ, the International Sanitary Bureau, making these bodies autonomous. These names were subsequently changed to "Pan American."

In accordance with these resolutions of the Second International Conference of American States, the First International (Pan American) Sanitary Conference, was called to meet in Washington in October 1902. It was here that such pioneers in public health work as Liceaga, of Mexico, Wyman of the United States, Finlay of Cuba, Moore of Chile, Ulloa of Costa Rica, and their colleagues from these and other countries, brought into being this series of Pan American sanitary conferences whose influence has so profoundly affected the development of public health activities throughout the American republics.

It is not my intention to recount further the early history of the Pan American sanitary conferences, but to tell you something of our purposes and of the present activities of the Pan American Sanitary Bureau. In this connection may I remind you that our principal objectives may be enumerated as follows:

First, to prevent by cooperative measures the introduction of diseases from other countries and from one American republic into another. This objective includes the prevention of the introduction of vectors of disease, whether infected or uninfected, particularly of such vectors as are not already widely disseminated, vectors of such diseases as African trypanosomiasis, or sleeping sickness; vectors of Rocky Mountain spotted fever and similar fevers; vectors of American trypanosomiasis, or Chagas' disease; vectors of onchocerciasis, which so often results in blindness; and of known and unknown vectors of yellow fever, particularly *Aedes scapularis* and others, if such there be, that breed in ground water and that convey yellow fever readily, at least under laboratory conditions.

A *second* objective is that of obviating the necessity of enforcing costly quarantines against infected ports by taking such local precautions as will prevent the infection of common carriers.

A *third* objective is that of stimulating health authorities in all the American republics to greater efforts for the control and eradication of disease, cooperating in such work upon request insofar as our resources will permit.

A *fourth* objective is that of securing the prompt reporting of quarantinable diseases in the territories of all the American republics and, through cooperation with other international bodies, particularly the International Office of Public Health of Paris, the receiving of similar reports from countries in the Eastern Hemisphere. The prompt transmission of such reports establishes confidence and enables noninfected countries to apply a minimum of restrictive measures, whereas, failure to report the presence of quarantinable disease destroys such confidence, causes noninfected countries to become unsympathetic, and leads them to impose drastic quarantine measures once the presence of such disease is revealed as it must be sooner or later.

Finally, a most praiseworthy objective of our institution is that of promoting cordial relations among the peoples of the American republics. I am happy to say that this has always been a relatively simple task. Fortunately, the subjects upon which controversy seemed likely to arise have usually been of minor importance and generally due to the persistence of some honest but misguided individual. So far, our general conferences have been practically 100 percent harmonious. May I express the hope that they shall always remain so.

Let us pause now and inquire what have been the results of individual and cooperative efforts in the control of communicable disease during the brief period of time that our organization has been in existence. I am not speaking of our own efforts solely but of the combined efforts of all who have contributed, both official and voluntary agencies; of the collective and individual efforts of the members of the medical profession, of philanthropists and of the average citizen in the discharge of his civic duties; of the efforts of all who have aided in making this world a safer, a more comfortable place to live, not only for man but for his faithful servants, our domestic animals, as well.

It is difficult to realize today that during the last half of the nineteenth century wide-spread epidemics of such diseases as typhoid fever, diphtheria, smallpox, cholera, yellow fever, and, in the Orient, bubonic plague were still common occurrences, and that as late as the close of the century, with few exceptions, drastic and costly quarantines were about the only methods by which health authorities attempted to control the spread of disease, particularly of such diseases as plague, cholera, and yellow fever, in both international and domestic commerce. In striking contrast, a resort to actual quarantine at the present time, such as the detention of vessels, passengers, and crews for a week or 10 days as was formerly not unusual, would be to confess that cooperative and, particularly, local efforts had somewhere broken down; that some nation or community had failed to discharge its obligation by allowing disease to get beyond control, thus becoming a menace to other nations or communities. I can

remember when it was not unusual to hold a ship and its entire personnel in quarantine anywhere from 10 to 14 days. While always retaining the right to detain common carriers if this should become necessary, to be obliged to exercise this right today is to confess that some country has been, in a measure, derelict in its duty in not preventing such carrier from becoming infected.

You are, of course, familiar with the fact that there are two comprehensive treaties which prescribe the measures that should be carried out by signatory nations in preventing the spread in international commerce of such diseases as plague, cholera, yellow fever, smallpox, and typhus fever; these are the International Sanitary Convention of Paris and the Pan American Sanitary Code. A third such treaty, the International Sanitary Convention for Aerial Navigation, has very properly been placed on the agenda of this conference.

In 1920, at the meeting of the Sixth Pan American Sanitary Conference in Montevideo, the Pan American Sanitary Bureau was reorganized and shortly thereafter began in a small way its present work. Step by step the Bureau has endeavored to expand its activities and increase its usefulness by fostering international cooperation and by stimulating and aiding the health authorities of affiliated republics in their efforts to prevent the spread of disease and to eradicate it from their territories. At the same time, the Bureau acts as a consulting office whose services are available for use by the health authorities of all American republics, consultations being invited on all matters pertaining to preventive medicine, hygiene, and the protection of the public health. It also functions as a distributing center of current information regarding the presence of communicable diseases, the measures being taken for their control, and the most recent approved methods of combating them. It is the regional agency of the International Office of Public Health of Paris for collecting and transmitting reports of communicable diseases occurring in the American republics, having been made so by the Eighth Pan American Sanitary Conference at Lima, Peru. Reciprocally, the Bureau receives from the International Office similar information for the Western Hemisphere, which it transmits regularly to the directing heads of the health departments of all the American republics.

The Bureau endeavors to function as a harmonizing agency when conflicting interests of affiliated countries are involved. Not infrequently there arise honest misunderstandings and misconceptions, generally due to a lack of sufficient information or of more definite background. Sometimes outbreaks of disease in one country cause great alarm in others, particularly if such outbreaks are featured, perhaps exaggerated, in the daily press, a circumstance which tends to cause health authorities in uninfected countries to be stampeded

into resorting to drastic, even obsolete, quarantine measures. This is particularly likely to be so if there is a new and inexperienced health officer on the job, and the turn-over among the heads of our health departments is sometimes amazingly rapid. In contingencies such as I have just mentioned, it devolves upon the Sanitary Bureau to obtain and disseminate authoritative information with regard to the actual situation and, if necessary, to remind all countries concerned of their treaty obligations in order to limit quarantine activities to a minimum of restrictive measures compatible with the public safety. To make quarantine alone effective in the control of communicable disease would paralyze both commerce and industry. We should bear in mind that quarantine measures are a sieve, and not a dam.

Perhaps I can best illustrate the intimate contact maintained by the Sanitary Bureau with the departments of health of the various republics and with other international health bodies by a few concrete examples, such as the following:

Several years ago, the health authorities of Cuba became justly concerned because of the presence of smallpox in one of the southern States of the United States. A desire was expressed by the head of the Department of Health of Cuba to send two experts to the State involved in order to determine for themselves, at first hand, the actual conditions. Through the good offices of the Sanitary Bureau arrangements were made with State and local authorities for this to be done. As a result of the visit of these experts, Cuban authorities were satisfied and State and local authorities redoubled their efforts and soon eradicated the disease.

In December 1932, a death occurred in a former endemic center in which a diagnosis of yellow fever was made by a prominent local physician; the diagnosis was concurred in by an expert in another country to whom tissues were sent, but was disputed by the health authorities of the country in whose principal port the death had occurred. An appeal was made to me as director of the Pan American Sanitary Bureau by the physician who had made the diagnosis, a complete report of the necropsy of the case being sent. The local authorities and the traveling representative of the Bureau, who was on the ground, both reported that the *Aedes* index of the city and of nearby towns was less than 5 percent. Bearing this fact in mind and being extremely doubtful of the diagnosis after reading the report of the necropsy, I decline to report the case as yellow fever. In March 1933, this same physician reported a second death which he attributed to yellow fever, and again sent me a complete report of the necropsy findings. This time two other experts in different countries, one of whom was connected with the Rockefeller Foundation, concurred in the diagnosis of yellow fever based on examination of tissues. After weighing the evidence most carefully I was still unconvinced that the

case was yellow fever, and again declined to accept the diagnosis. I did, however, suggest to the director of health of the country in which the cases occurred, that he arrange to have specimens of blood taken for examination by the mouse-protection test, not only in the city where the cases occurred but in other towns in the vicinity. This was immediately done with the result, I am informed, that it was found that yellow fever had not been present, apparently, for more than 15 years.

A director of health of an American republic cabled the Sanitary Bureau that his people were greatly alarmed because of the alleged ill effects of a certain imported food product extensively sold in his country. Authoritative information was sent as to its contents, harmlessness, usefulness, and limitations as a food.

Another director of health wrote the Sanitary Bureau that a certain food product of questionable character, imported from a European country, was being extensively sold in his vicinity. Inquiry revealed the fact that this product was being made from the flesh of animals condemned as being unfit for food in the United States, the substance being exported for lubricating purposes plainly labeled as such. It was being reprocessed by a European firm, packed, shipped, and sold as prime lard.

A director of health inquired of the Sanitary Bureau whether it was safe to allow the use of a certain substance in the manufacture of soft drinks. He was informed that the substance in question was detrimental to health and should not be used.

The International Office of Public Health of Paris cabled the Sanitary Bureau for information regarding a certain vessel en route to a European port; the Bureau advised fumigation. The vessel was accordingly fumigated and seven plague-infected rats were recovered from her holds.

A director of health who was putting in a sewer system wrote to the Bureau asking if a certain substance proposed as a substitute for another was satisfactory when used to seal the joints of pipes. He was informed that it was.

Quite recently a vessel arrived at an important South American port with seven cases of illness aboard that were very suspicious of yellow fever. The vessel was detained in quarantine pending the making of a diagnosis. The fact got into the newspapers and a general alarm was sounded. The Sanitary Bureau cabled the health authorities who were detaining the vessel and immediately received the information that the cases were Weil's disease. Upon the release of this information, confidence was restored.

It will be recalled that the Pan American conferences of national directors of health of the American republics are held under the

auspices of the Pan American Sanitary Bureau. Two such conferences have been held, both of which were very successful and of unusual interest.

From time to time the Pan American Sanitary Bureau details traveling representatives to visit and assist health authorities in combating communicable disease, cooperating in such work upon request insofar as our resources will permit. Dr. John D. Long, who needs no introduction, is present at the Conference and will give you a résumé of his work on plague during the past several years.

A very important work of the Bureau is the publication of the Pan American Sanitary Bulletin, a monthly journal printed in Spanish, Portuguese, French, and English, and dedicated to the dissemination of information relating to hygiene and public health and the cultivation of good will. It is, as you know, sent without charge to physicians and others connected with departments of health, both national and local, and to certain others who are more than casually interested in public health. It is the goal of the Bureau to continue to improve the contents of the Bulletin and to place it in the hands of at least one physician or other person interested in public health work in every town of 2,000 inhabitants or over throughout the whole of Latin America, and this is rapidly being accomplished.

The employees of the Bureau on active duty at the present time are nine in number. Eight of these, together with the Assistant to the Director, occupy one room, a condition of overcrowding which may oblige the office to seek additional space if this can be had in the vicinity of the Pan American Union. In addition, we are very much in need of additional library facilities.

It will be recalled that the Seventh Pan American Sanitary Conference at Habana, Cuba, directed that the Pan American Sanitary Bureau should prepare regulations for its internal management, which, while temporarily immediately effective, were to be submitted to a subsequent Pan American Sanitary Conference for approval. Such regulations were prepared by the directing council at its first administrative session, May 27 to June 8, 1929, and are submitted for your consideration with recommendations for slight changes in the text, which are believed to be expedient.

I want to reiterate at this time my appreciation of the assistance, advice, and loyal support of my colleagues of our directing council; and when I use the term "directing council" I mean, of course, the members of the Pan American Sanitary Bureau. May I say that I should welcome from this ninth conference any suggestions you may desire to make and any directions you may wish to give that will enable the Bureau to render more efficient or more satisfactory service.

In conclusion it may be said that the Pan American Sanitary Bureau is a permanent international body, your executive organ, whose usefulness is limited only by its resources, by the powers granted it, by willingness on the part of affiliated governments to accept its services, and by the wisdom of those who guide its destinies.

DEATHS DURING WEEK ENDED AUG. 10, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 10, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	6,821	6,951
Deaths per 1,000 population, annual basis	9.5	9.7
Deaths under 1 year of age	483	540
Deaths under 1 year of age per 1,000 estimated live births	44	50
Deaths per 1,000 population, annual basis, first 32 weeks of year	11.8	11.8
Data from industrial insurance companies:		
Policies in force	67,847,909	67,575,403
Number of death claims	11,021	12,053
Death claims per 1,000 policies in force, annual rate	8.5	9.3
Death claims per 1,000 policies, first 32 weeks of year, annual rate	10.1	10.3

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Aug. 17, 1935, and Aug. 18, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 17, 1935, and Aug. 18, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934
New England States:								
Maine	1				6	1	0	0
New Hampshire					2	5	0	0
Vermont	2				9	2	0	0
Massachusetts	2	16			22	25	0	0
Rhode Island	2	1			11	7	0	0
Connecticut	4	2		1	15	10	1	0
Middle Atlantic States:								
New York	14	12	[1] 2	[1] 7	192	79	14	1
New Jersey	9	5	8	2	36	34	2	0
Pennsylvania [2,3]	27	22			77	131	4	1
East North Central States:								
Ohio	20	9	15	3	63	81	3	1
Indiana	7	11	19	5	5	4	2	0
Illinois	17	21	9	2	52	55	7	7
Michigan	5	9	4		48	23	3	0
Wisconsin		6	20	24	148	101	2	1
West North Central States:								
Minnesota	2	4			11	14	0	0
Iowa	4	4	1		4	8	3	1
Missouri [2]	17	12	64	3	10	13	1	0
North Dakota		2	5		8	9	0	0
South Dakota	7	4				100	0	2
Nebraska	2	8			2	6	0	0
Kansas [2]	6	9	1		12	6	1	0
South Atlantic States:								
Delaware	1	1			1	1	0	0
Maryland [2,3,4,5]	3	4		129	5	7	5	0
District of Columbia	9	1			7		8	0
Virginia [3,5]	19	25			16	72	4	2
West Virginia	13	10	21	19	4	16	3	1
North Carolina [3,5]	19	21	1	1	8	32	0	1
South Carolina	12	4	49	52	4	11	0	0
Georgia [3]	15	25					0	0
Florida	5	12	1	2	2	13	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 17, 1935, and Aug. 18, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934
East South Central States:								
Kentucky	12	25	43	-------	59	27	2	3
Tennessee	14	6	4	5	-------	9	6	0
Alabama [3]	19	45	8	1	7	25	0	2
Mississippi [4]	15	7	-------	-------	-------	-------	0	1
West South Central States:								
Arkansas	16	2	2	8	1	-------	0	0
Louisiana [3]	13	12	13	6	7	15	1	0
Oklahoma [6]	6	7	19	7	5	2	1	0
Texas [3]	39	48	22	28	5	25	0	1
Mountain States:								
Montana [5]	1	-------	-------	-------	9	9	0	0
Idaho [5]	-------	-------	-------	-------	2	4	0	0
Wyoming	-------	-------	-------	-------	1	2	0	0
Colorado	5	3	-------	-------	7	14	2	0
New Mexico	2	11	-------	2	1	9	0	0
Arizona	1	1	2	3	-------	49	0	0
Utah [4]	1	-------	-------	-------	2	1	0	0
Pacific States:								
Washington	1	3	-------	-------	19	19	0	1
Oregon	2	-------	8	2	41	2	0	0
California	10	15	3	7	100	45	3	0
Total	401	445	314	319	1,046	1,123	78	26
First 33 weeks of year	18,120	20,445	104,111	49,140	695,479	668,262	4,165	1,591

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934
New England States:								
Maine	4	2	6	8	0	0	4	6
New Hampshire	9	1	2	2	0	0	0	0
Vermont	0	1	8	5	0	0	0	1
Massachusetts	116	1	40	37	0	0	6	6
Rhode Island	12	0	5	1	0	0	1	1
Connecticut	43	0	8	3	0	0	5	1
Middle Atlantic States:								
New York	244	6	82	81	0	0	28	24
New Jersey	19	7	16	18	0	0	9	2
Pennsylvania [2] [3]	12	5	109	103	0	0	18	23
East North Central States:								
Ohio	9	11	52	66	0	0	19	43
Indiana	3	3	17	21	0	0	9	18
Illinois	13	17	112	64	2	1	49	72
Michigan	40	13	41	57	0	1	11	21
Wisconsin	1	2	53	35	2	5	4	17
West North Central States:								
Minnesota	4	10	25	21	0	0	15	2
Iowa	8	2	7	13	0	0	15	10
Missouri [3]	2	1	17	20	1	0	17	63
North Dakota	1	0	12	11	0	1	1	4
South Dakota	0	3	25	-------	1	0	2	1
Nebraska	0	0	9	10	1	0	0	2
Kansas	0	8	18	11	0	0	30	19
South Atlantic States:								
Delaware	0	0	1	2	0	0	1	4
Maryland [2] [3] [4] [5]	5	5	9	11	0	0	17	25
District of Columbia	4	1	3	8	0	0	3	1
Virginia [3] [5]	73	9	19	22	0	0	32	50
West Virginia	3	6	26	17	1	0	21	27
North Carolina [3] [5]	17	3	17	12	0	0	22	30
South Carolina	0	0	1	2	0	0	29	26
Georgia [3]	1	0	5	6	6	0	55	46
Florida	1	0	3	4	0	0	14	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 17, 1935, and Aug. 18, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934	Week ended Aug. 17, 1935	Week ended Aug. 18, 1934
East South Central States:								
Kentucky	27	6	-------	31	0	0	61	87
Tennessee	3	5	10	8	0	0	56	56
Alabama [3]	2	2	6	7	1	0	6	34
Mississippi [4]	0	1	5	13	0	0	5	15
West South Central States:								
Arkansas	1	0	9	5	2	0	13	26
Louisiana [3]	4	0	9	4	0	0	21	14
Oklahoma [6]	0	0	8	10	0	1	27	24
Texas [3]	1	1	28	29	0	2	54	63
Mountain States:								
Montana [5]	0	34	-------	9	1	0	4	7
Idaho [5]	0	14	1	2	0	0	2	0
Wyoming	0	0	4	3	1	0	1	1
Colorado	0	2	15	15	1	0	7	14
New Mexico	0	0	6	4	0	0	13	12
Arizona	1	3	3	2	0	0	5	1
Utah [4]	2	1	18	1	0	0	0	3
Pacific States:								
Washington	1	70	18	12	1	10	3	5
Oregon	1	4	11	17	0	1	6	3
California	34	75	49	67	0	3	10	10
Total	721	335	948	910	21	25	731	901
First 33 weeks of year	3,522	4,065	180,379	148,158	5,311	3,751	9,250	11,192

[1] New York City only.
[2] Epidemic encephalitis, week ended Aug. 17, 1935, 93 cases, as follows: Pennsylvania, 89; Missouri, 1; Kansas, 2; Maryland, 1.
[3] Typhus fever, week ended Aug. 17, 1935, 49 cases, as follows: Pennsylvania, 1; Maryland, 1; Virginia, 2; North Carolina, 4; Georgia, 17; Alabama, 11; Louisiana, 2; Texas, 11.
[4] Week ended earlier than Saturday.
[5] Rocky Mountain spotted fever, week ended Aug. 17, 1935, 7 cases, as follows: Maryland, 1; Virginia, 2; North Carolina, 1; Montana, 1; Idaho, 2.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following reports of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July 1935										
Arizona	-------	4	8	-------	17	-------	0	23	0	11
Delaware	1	6	-------	-------	57	-------	1	7	0	7
Maine	2	2	1	-------	357	-------	1	44	0	4
Maryland	18	21	7	4	103	2	9	96	0	48
Michigan	13	38	6	11	2,502	-------	21	345	1	64
Minnesota	3	17	4	-------	221	-------	4	237	16	140
Nebraska	1	9	-------	-------	89	-------	0	32	32	1
New Jersey	10	40	5	2	1,504	-------	16	152	0	9
New Mexico	2	7	5	8	9	23	1	25	0	42
North Dakota	1	2	9	-------	33	-------	-------	28	2	4
Ohio	26	86	16	34	1,381	1	7	349	2	84
Pennsylvania	20	107	-------	1	2,091	5	7	749	0	109
Tennessee	8	21	31	451	41	30	27	42	0	154
Wyoming	-------	3	1	-------	45	-------	0	43	31	1

July 1935

	Cases
Anthrax:	
Pennsylvania	2
Chicken pox:	
Arizona	16
Delaware	4
Maine	80
Maryland	58
Michigan	385
Minnesota	96
Nebraska	25
New Jersey	348
New Mexico	8
North Dakota	29
Ohio	360
Pennsylvania	1,183
Tennessee	14
Wyoming	7
Conjunctivitis:	
Delaware	1
Maryland	1
New Mexico	1
Diarrhea:	
Maryland	68
Ohio (and enteritis)	17
Dysentery:	
Arizona	18
Maryland	7
Michigan (amoebic)	4
Michigan (bacillary)	1
Minnesota (amoebic)	1
Minnesota (bacillary)	1
New Jersey (amoebic)	1
New Jersey (bacillary)	1
New Jersey (unspecified)	2
New Mexico (amoebic)	2
New Mexico (unspecified)	13
Tennessee	133
Epidemic encephalitis:	
Maine	1
Michigan	3
New Jersey	3
Ohio	1
Pennsylvania	10
Food poisoning:	
Ohio	29
German measles:	
Arizona	8
Delaware	8
Maine	50
Maryland	67
New Jersey	277
New Mexico	5
Ohio	77
German measles—Contd.	
Pennsylvania	1,061
Tennessee	4
Hookworm disease:	
Delaware	1
Impetigo contagiosa:	
Maryland	17
Tennessee	5
Lead poisoning:	
Michigan	9
New Jersey	1
Ohio	8
Leprosy:	
Maryland	1
Michigan	1
Mumps:	
Arizona	29
Delaware	19
Maine	27
Maryland	51
Michigan	228
Nebraska	22
New Jersey	242
New Mexico	11
North Dakota	3
Ohio	420
Pennsylvania	927
Tennessee	64
Wyoming	3
Ophthalmia neonatorum:	
Maryland	3
New Mexico	1
Ohio	76
Pennsylvania	1
Paratyphoid fever:	
Maine	1
Maryland	1
Michigan	1
Ohio	1
Tennessee	1
Puerperal septicemia:	
New Mexico	5
Ohio	5
Rabies in animals:	
Maryland	1
Michigan	3
New Jersey	13
Rocky Mountain spotted fever:	
Maryland	11
Minnesota	1
New Jersey	1
North Dakota	1
Pennsylvania	1
Wyoming	23
Septic sore throat:	
Maryland	4
Michigan	9
Nebraska	1
New Mexico	4
Ohio	110
Tennessee	4
Tetanus:	
Maryland	2
Michigan	1
New Jersey	1
Ohio	8
Trachoma:	
Arizona	37
Minnesota	1
New Jersey	1
Ohio	1
Pennsylvania	4
Tularaemia:	
Minnesota	13
Wyoming	2
Typhus fever:	
Maryland	4
Wyoming	1
Undulant fever:	
Delaware	1
Maryland	2
Michigan	4
Minnesota	7
New Jersey	6
Ohio	9
Pennsylvania	9
Tennessee	1
Vincent's infection:	
Maine	2
Maryland	17
Michigan	6
North Dakota	4
Tennessee	4
Whooping cough:	
Arizona	14
Delaware	10
Maine	26
Maryland	152
Michigan	1,561
Minnesota	110
Nebraska	27
New Jersey	1,157
New Mexico	59
North Dakota	34
Ohio	827
Pennsylvania	1,454
Tennessee	241
Wyoming	37

CASES OF VENEREAL DISEASES REPORTED FOR JUNE 1935

This statement is published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State health officers. They are preliminary and are, therefore, subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	922	3.42	384	1.42
Arizona	49	1.08	129	2.85
Arkansas	444	2.37	300	1.60
California	1,458	2.41	1,319	2.18
Colorado [1]				
Connecticut	230	1.40	129	.78
Delaware	131	5.44	31	1.29
District of Columbia	183	2.69	146	2.95
Florida	354	2.28	71	.46
Georgia	910	3.13	210	.72
Idaho	0	0	0	0

See footnotes at end of table.

Cases of Venereal Diseases Reported for June 1935—Continued

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Illinois	1,336	1.71	1,086	1.39
Indiana	345	1.05	282	.86
Iowa [2]	153	.62	146	.59
Kansas	95	.50	48	.25
Kentucky	247	.93	318	1.20
Louisiana	110	.51	62	.29
Maine	35	.44	53	.66
Maryland	767	4.61	207	1.24
Massachusetts	418	.97	526	1.22
Michigan	520	1.03	340	.67
Minnesota	450	1.73	319	1.23
Mississippi	1,211	5.91	1,923	9.39
Missouri	742	2.02	284	.77
Montana [2]	38	.71	48	.89
Nebraska	27	.19	55	.40
Nevada [1]				
New Hampshire	18	.38	16	.34
New Jersey	607	1.45	255	.61
New Mexico [2]	24	.55	33	.76
New York [2]	3,619	2.79	831	.64
North Carolina	1,336	4.08	435	1.33
North Dakota	23	.33	46	.67
Ohio [2]	624	.92	170	.25
Oklahoma [2]	183	.88	196	.94
Oregon	39	.40	88	.90
Pennsylvania	259	.26	205	.21
Rhode Island	79	1.13	52	.74
South Carolina [2]	363	2.08	456	2.61
South Dakota	11	.16	28	.40
Tennessee	1,146	4.30	556	2.09
Texas	512	.85	173	.20
Utah [1]				
Vermont	20	.55	35	.97
Virginia [2]	431	1.77	292	1.20
Washington	163	1.02	224	1.40
West Virginia [3]				
Wisconsin [4]	18	.06	129	.43
Wyoming [1]				
Total	20,600	1 69	12,636	1.04

[1] Not reporting.
[2] Incomplete.
[3] Has been reporting regularly but no report received for current month.
[4] Only cases of syphilis in the infectious stage are reported.

NOTE.—Surveys in which all medical sources have been contacted in representative communities throughout the United States have revealed that the monthly rate per 10,000 population is 6.6 for syphilis and 19.2 for gonorrhea.

WEEKLY REPORTS FROM CITIES

City reports for week ended Aug. 10, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	0	0	0	1	1	3	17
New Hampshire:											
Concord	0		0	0	0	1	0	0	0	0	12
Manchester	0		0	0	0	0	0	1	0	0	9
Nashua	0			0		0	0		0	0	
Vermont:											
Barre											
Burlington	0		0	0	0	0	0	0	0	0	5
Rutland	0	0	0	0	0	0	0	0	0	2	8

City reports for week ended Aug. 10, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Massachusetts:											
Boston	3	------	0	12	5	7	0	9	0	8	162
Fall River	0	------	1	0	0	0	0	3	0	6	19
Springfield	0	------	0	1	1	1	0	2	0	3	31
Worcester	0	------	0	0	0	5	0	2	0	0	32
Rhode Island:											
Pawtucket	0	------	------	0	------	0	0	------	0	0	10
Providence	0	------	0	[1] 226	1	2	0	1	0	28	52
Connecticut:											
Bridgeport	0	------	0	0	0	0	0	0	0	2	19
Hartford	0	------	0	0	0	0	0	2	1	9	28
New Haven	0	------	0	0	4	0	0	0	1	0	32
New York:											
Buffalo	0	------	0	3	8	7	0	7	0	20	119
New York	7	5	0	114	72	21	0	70	19	108	1,171
Rochester	0	------	0	4	2	1	0	1	0	6	41
Syracuse	0	------	0	27	1	2	0	1	0	16	48
New Jersey:											
Camden	0	1	0	1	0	0	0	1	0	0	20
Newark	0	2	0	2	3	0	0	6	1	57	76
Trenton	0	------	0	2	1	2	0	1	0	2	22
Pennsylvania:											
Philadelphia	6	------	0	6	12	11	0	24	2	79	356
Pittsburgh	2	------	0	3	9	9	0	5	1	40	126
Reading	0	------	0	1	2	3	0	0	1	0	15
Scranton	0	------	------	0	------	2	0	------	0	3	------
Ohio:											
Cincinnati	0	------	0	0	5	1	0	4	0	3	140
Cleveland	3	7	0	12	6	2	0	5	1	60	160
Columbus	0	------	0	0	3	3	0	2	0	3	69
Toledo	0	------	0	5	2	0	0	4	1	13	65
Indiana:											
Anderson	0	------	0	0	1	0	0	0	0	4	7
Fort Wayne	0	------	0	0	2	1	0	0	0	0	25
Indianapolis	0	------	0	3	10	3	0	2	1	5	88
Muncie	0	------	0	0	1	0	0	1	0	0	14
South Bend	0	------	0	0	1	1	0	0	0	0	19
Terre Haute	0	------	0	0	0	0	0	0	0	0	22
Illinois:											
Alton	0	------	0	0	2	1	0	0	0	1	8
Chicago	12	4	1	42	20	48	0	36	2	170	520
Elgin	0	------	0	0	1	1	0	1	0	6	9
Moline	0	------	0	0	0	0	0	0	0	1	4
Springfield	0	------	0	0	2	0	0	0	0	11	20
Michigan:											
Detroit	2	4	0	14	6	3	0	13	5	142	204
Flint	0	------	0	0	0	0	0	1	0	26	19
Grand Rapids	0	------	0	0	0	2	0	1	0	21	20
Wisconsin:											
Kenosha	0	------	0	1	0	1	0	0	0	7	8
Milwaukee	1	------	0	29	3	13	0	1	0	80	88
Racine	0	------	0	3	0	1	0	0	0	14	10
Superior	0	------	0	1	0	0	0	0	0	0	8
Minnesota:											
Duluth	0	------	0	0	3	2	0	0	0	2	20
Minneapolis	2	------	0	1	0	6	0	2	9	0	70
St. Paul	0	------	0	1	1	5	0	1	4	1	49
Iowa:											
Cedar Rapids	0	------	------	1	------	0	0	------	1	1	------
Des Moines	0	------	------	0	------	6	0	------	0	0	25
Sioux City	------	------	------	------	------	------	------	------	------	------	------
Waterloo	0	------	0	0	0	0	0	0	1	2	------
Missouri:											
Kansas City	0	------	0	1	7	1	0	4	0	3	77
St. Joseph	0	------	0	0	3	0	0	0	0	0	28
St. Louis	0	------	0	1	3	3	0	5	3	13	291
North Dakota:											
Fargo	0	------	0	0	0	2	0	0	0	4	10
Grand Forks	0	------	------	0	------	0	0	------	0	0	------
Minot	0	------	0	0	1	0	0	0	0	0	3
Nebraska:											
Omaha	2	------	0	0	1	0	0	0	0	7	37

[1] Delayed reports included.

City reports for week ended Aug. 10, 1935—**Continued**

State and City	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	4
Topeka	0	------	0	2	0	1	0	0	3	7	17
Wichita	0	------	0	0	3	0	0	0	0	3	29
Delaware:											
Wilmington	0	------	0	0	1	0	0	1	0	1	27
Maryland:											
Baltimore	1	1	0	3	5	2	0	7	1	18	189
Cumberland	------	------	------	------	------	------	------	------	------	------	------
Frederick	0	------	0	0	0	0	0	0	1	0	6
District of Columbia:											
Washington	0	------	0	0	4	5	0	5	2	10	139
Virginia:											
Lynchburg	------	------	------	------	------	------	------	------	------	------	------
Norfolk	0	------	0	0	0	0	0	1	4	1	31
Richmond	0	------	0	0	1	1	0	1	1	0	52
Roanoke	0	------	0	0	0	0	0	2	1	0	15
West Virginia:											
Charleston	7	------	0	0	0	1	0	0	0	0	14
Huntington	0	------	------	0	------	2	0	------	0	0	------
Wheeling	0	------	0	2	1	0	0	1	0	0	20
North Carolina:											
Gastonia	1	------	0	0	0	0	0	0	0	0	7
Raleigh	------	------	------	------	------	------	------	------	------	------	------
Wilmington	0	------	0	0	0	0	0	1	0	0	13
Winston-Salem	1	------	0	0	2	0	0	0	0	11	17
South Carolina:											
Charleston	0	5	0	0	2	2	0	4	0	0	31
Columbia	------	------	------	------	------	------	------	------	------	------	------
Florence	0	------	0	0	1	0	0	0	0	0	8
Greenville	0	------	0	0	0	0	0	2	2	0	11
Georgia:											
Atlanta	5	------	0	0	6	0	0	5	3	[illegible]	95
Brunswick	0	------	0	0	0	0	0	0	0	0	4
Savannah	5	1	1	1	0	1	0	1	2	0	32
Florida:											
Miami	0	------	0	1	0	0	0	0	0	0	28
Tampa	2	------	0	0	1	1	0	1	0	0	28
Kentucky:											
Ashland	0	0	0	0	0	0	0	0	0	0	0
Covington	1	------	------	0	------	2	0	------	1	1	9
Lexington	1	------	0	0	2	0	0	3	0	0	17
Louisville	1	1	0	0	4	5	0	5	2	41	79
Tennessee:											
Knoxville	1	------	------	0	------	0	0	------	0	0	24
Memphis	------	------	------	------	------	------	------	------	------	------	------
Nashville	0	------	0	0	2	5	0	0	1	0	66
Alabama:											
Birmingham	2	------	0	1	1	0	0	3	0	0	59
Mobile	0	------	0	1	0	0	0	2	0	0	21
Montgomery	0	------	0	1	0	0	0	0	0	0	------
Arkansas:											
Fort Smith	0	------	------	0	------	0	0	------	0	0	------
Little Rock	1	------	0	0	4	[illegible]	0	7	0	0	------
Louisiana:											
Lake Charles	0	------	------	0	------	0	0	------	0	1	3
New Orleans	4	------	0	0	9	2	0	14	1	15	164
Shreveport	0	------	0	0	2	0	0	1	0	0	39
Texas:											
Dallas	3	------	0	0	1	6	0	3	0	5	58
Fort Worth	0	------	0	0	3	1	0	1	0	1	33
Galveston	1	------	0	0	0	3	0	2	1	0	14
Houston	8	------	0	3	4	2	0	8	3	0	72
San Antonio	0	------	1	0	0	2	0	9	0	0	50
Montana:											
Billings	2	------	0	0	0	0	0	0	0	3	2
Great Falls	0	------	0	1	0	0	0	0	0	2	4
Helena	0	------	0	0	0	0	0	0	0	0	2
Missoula	0	------	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	------	------	------	------	------	------	------	------	------	------	------

City reports for week ended Aug. 10, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Colorado:											
Colorado Springs	0	------	0	0	0	0	0	1	0	3	13
Denver	4	------	1	2	4	2	0	3	1	6	64
Pueblo	0	------	0	0	0	1	0	0	1	7	10
New Mexico	0	------	0	0	0	0	0	2	1	0	14
Albuquerque	0	------	0	0	0	0	0	2	1	0	14
Utah:											
Salt Lake City	0	------	2	0	3	6	0	2	0	19	32
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	4
Washington:											
Seattle	0	------	1	20	1	1	0	3	0	3	75
Spokane	0	------	0	4	0	1	0	0	0	4	20
Tacoma	0	------	0	0	0	2	0	0	0	0	21
Oregon	0	------	0	8	2	1	0	2	1	0	59
Portland	0	------	0	8	2	1	0	2	1	0	59
Salem	0	------	--------	0	-------	0	0	------	0	1	--------
California:											
Los Angeles	7	6	1	30	12	14	0	17	0	14	267
Sacramento	0	------	0	4	1	7	0	11	0	0	38
San Francisco	0	------	0	30	4	4	0	5	0	18	127

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
New Hampshire:			
Concord	0	0	2
Manchester	0	0	1
Massachusetts:			
Boston	1	0	44
Fall River	0	0	16
Rhode Island:			
Pawtucket	0	0	1
Providence	1	0	3
Connecticut:			
Bridgeport	0	0	10
Hartford	0	0	1
New Haven	0	0	5
New York:			
New York	11	1	133
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	0	0	7
Ohio:			
Cincinnati	0	1	0
Cleveland	0	0	4
Indiana:			
Muncie	1	0	0
Illinois:			
Chicago	2	1	6
Michigan:			
Detroit	1	0	9
Flint	0	0	6

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Wisconsin:			
Racine	0	0	1
Iowa:			
Cedar Rapids	0	0	1
Missouri:			
St. Louis	3	1	1
Delaware:			
Wilmington	0	0	1
Maryland:			
Baltimore	1	2	0
District of Columbia:			
Washington	0	0	4
Virginia:			
Richmond	0	0	4
Roanoke	0	0	1
Georgia:			
Atlanta	1	0	0
Florida:			
Miami	0	0	1
Tampa	1	1	0
Kentucky:			
Louisville	1	1	5
Louisiana:			
New Orleans	0	0	1
Shreveport	0	0	2
California:			
Los Angeles	2	1	9
Sacramento	0	0	1
San Francisco	1	1	0

Epidemic encephalitis.—Cases: New York, 4; Kansas City, Mo., 1; St. Louis, 1; Louisville, 1; Sacramento, 1

Pellagra.—Cases: Baltimore, 1; Wilmington, 1; Atlanta, 3; Savannah, 3; Tampa, 1; Knoxville, 1; Little Rock, 1; Dallas, 1; San Francisco, 1.

Typhus fever.—Cases: Savannah, 1; Mobile, 2; Shreveport, 1; Dallas, 2.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended July 27, 1935.—During the 2 weeks ended July 27, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				4		1				5
Chicken pox				122	473	37	40	15	53	740
Diphtheria		9	2	33	14	5	4	1		68
Dysentery				5					1	6
Erysipelas				4	4	3			2	13
Influenza		10	3		3				8	24
Measles		11	10	167	1,014	32	87	83	203	1,607
Mumps		12			78	49	25	3	11	178
Paratyphoid fever					1		2			3
Pneumonia		3			10				8	21
Poliomyelitis				2	3	1		4	1	11
Scarlet fever		16	13	110	103	18	7	6	18	291
Smallpox					1	1				2
Trachoma					1				2	3
Tuberculosis	4	21	22	101	65	23	22	3	27	288
Typhoid fever			4	36	9	4	1		6	60
Undulant fever		1		2	3		2			8
Whooping cough		8	4	72	263	76	161	4	34	622

CUBA

Habana—Communicable diseases—4 weeks ended August 3, 1935.—During the 4 weeks ended August 3, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	2	2	Tuberculosis	47	7
Malaria	[1] 27	3	Typhoid fever	[1] 15	7

[1] Includes imported cases.

Provinces—Notifiable diseases—4 weeks ended July 27, 1935.—During the 4 weeks ended July 27, 1935, cases of certain notifiable diseases were reported in the Provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer			1	3	3	1	8
Cerebrospinal meningitis	1						1
Chicken pox				1		1	2
Diphtheria		1	6				7
Hookworm disease				2			2
Leprosy						7	7
Malaria	116	24	20	116	109	407	792
Measles		2	23	9	1	2	37
Poliomyelitis				3	4	1	8
Scarlet fever					1		1
Tuberculosis	1	1	26	40	23	24	115
Typhoid fever	5	27	16	32	48	5	133

JAMAICA

Communicable diseases—4 weeks ended August 10, 1935.—During the 4 weeks ended August 10, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	4	13	Leprosy		1
Diphtheria		1	Tuberculosis	36	74
Dysentery	9	3	Typhoid fever	13	72
Erysipelas		1			

LATVIA

Notifiable diseases—April–June 1935.—During the months of April, May, and June 1935, cases of certain notifiable diseases were reported in Latvia, as follows:

Disease	April	May	June	Disease	April	May	June
Anthrax			1	Mumps	15	17	13
Botulism			3	Paratyphoid fever	4	4	7
Cerebrospinal meningitis	13	13	7	Poliomyelitis	3	1	3
Diphtheria	112	75	40	Puerperal septicemia	17	7	6
Erysipelas	47	52	27	Scarlet fever	493	419	236
Influenza	297	293	245	Tetanus			3
Leprosy		1	1	Trachoma	55	34	30
Lethargic encephalitis			1	Typhoid fever	48	44	29
Malaria		1	1	Typhus fever		4	
Measles	108	96	109	Whooping cough	47	51	55

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar 30, 1935	Mar. 31–Apr. 27, 1935	Week ended—												
						May 1935				June 1935					July 1935			
						4	11	18	25	1	8	15	22	29	6	13	20	27
Ceylon:																		
Colombo	C		22	5														
	D		11	3														
Peliyagoda	C		22															
	D		17															
China:																		
Amoy	C														1			
Canton	C							1										
Swatow	C							1	1									
India	C	16,371	14,613	20,283	23,104	4,880	4,895	4,996	4,405	5,091	5,453	5,065	4,565	4,205				
	D	8,582	7,696	10,234	12,660	2,688	2,585	2,820	2,354	2,825	3,004	3,031	2,636	2,344				
Assam	C	874	127	330	2,038	569	543	631	662	398	412	242	111	49	92	75	57	26
	D	419	82	169	1,204	387	295	380	403	209	232	122	77	26	47	53	26	20
Bassein	C	8	6	4	21	15	5	2			3			1				
	D	9	4	2	14	12	6	2			1							
Bombay Presidency	C	90	150	234	146	96	69	17	50	49	53	58	23	33	130	209	353	
	D	45	59	98	66	39	39	11	18	19	21	19	13	12	54	94	128	
Bombay	C			6	1											4	1	2
Calcutta	C	174	444	838	782	186	256	190	193	101	104	146	149	204	191	164	94	73
Chittagong	C		4	14	19	6	6	18	4	3	12	4	4	6	2	1	3	2
Madras Presidency	C	7,693	6,473	3,738	2,432	417	455	284	312	419	643	575	499	447				
	D	4,115	3,340	1,927	1,215	235	235	159	153	209	272	263	195	223				
Madras	C	25	6	3	2						2	3	6	4	4	12	23	45
	D	17	3	1								2	2	1	2		6	15
Mergui	C		2															
Moulmein	C	1	26	8	6				1			13	1	4				
Negapatam	C	12	2	14	10													
Punjab	C						P	3	2	2	31	19	9	81	38	96	90	28

Rangoon	C	21	34	9	16	1	5	2	3		2	2	2			2	[1] 1	
Tuticorin	C	1		1	37	2	4											
India (French):																		
Chandernagor	C			17	62	4	2	2	7	2	4	1						
Karikal	C	55	28	17	1													
Pondichery	C	50	27	9	12	11	14	6		6								
Indo-China (see also table below):																		
Kandal	C	2																
Pnom-Penh	C		1	1								1						
Varela	C										1							
Philippine Islands: Rizal Province [2]	C												2	1				
	D													1				
Siam:																		
Bangkok	C			1														
Kanchanapuri Province [3]	C																	6
Nagara Rajsima—Roi Ech	C			13														
	D			2														
On vessels:																		
S. S. *Ellenga* at Rangoon from Calcutta	C	1																
S. S. *Tilawa* at Cocanada	C		[4] 1															
S. S. *Egra* at Rangoon	C	[4] 1																
S. S. *Santhia* at Rangoon from Calcutta	C		1															
S. S. *Incomati* at Colombo	C			1														
	D			1														
S. S. *Pasha* at Rangoon from Moulmein	C			1														
S. S. *Khandalla* at Rangoon	C			1														
S. S. *Juna* at Moulmein from Mergui	C			1														
S. S. *Karoa* at Rangoon	C			1														
S. S. *Ethiopia* at Madras from Rangoon	C				1													
	D				1													
S. S. *Ellenga* at Rangoon	C				1													
S. S. *Bodnant* at Calcutta	C					1												
S. S. *Baron Napier* at Calcutta	C								2									
S. S. *Barjora* at Calcutta	C										1							
S. S. *Rafula* at Penang	C													[4] 1				

[1] Imported.
[2] During the week ended Aug. 3, 1935, 1 case of cholera was reported in Rizal Province, Philippine Islands
[3] During the period Apr. 20 to July 9, 1935, 98 cases of cholera with 95 deaths were reported in Kanchanapuri Province, Siam.
[4] Suspected.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		March 1935			April 1935			May 1935			June 1935			July 1935
		1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30	1-10
Indo-China (French) (see also table above):														
Cambodia [5]	C	3		1	1	1	2	17	8	1	8	9	6	
	D	3		1	1	1	2	12	5		3	6	1	
Cochin-China [5]	C	2	1	1	1	1	1	3		5	7	5	11	2
	D	2	1	1	1	1	1	2		4	7	3	3	2

[5] Reports incomplete.

PLAGU

's; D, de

Place		Dec 30, 1934–Jan 26, 1935	Jan 27–Feb 23, 1935	Feb 24–Mar 30, 1935	Mar 31–Apr 27, 1935	Week ended— May 1935				June 1935					July 1935			
						4	11	18	25	1	8	15	22	29	6	13	20	27
Argentina [2] (see also table below): Pampa Territory—Victorica	C							1										
	D							1										
Azores. (See table below.)																		
Bechuanaland Protectorate	C					1	1											
Plague-infected rats						P												
Belgian Congo	C	4		1												1		2
Bolivia: Tomina Province. (See table below.)																		
Brazil:																		
Bahia State [3]																		
Pernambuco State [4]																		

British East Africa:																		
Kenya	C			2				9	2	1	1		1	1	2	2	3	
Tanganyika	C			1														
Uganda	C	79	50	27	95	23	32	28	52	65	87	42	60	86	64	59	59	
	D	76	49	27	90	22	32	27	53	64	83	41	58	78	62	50	53	
Canary Islands: Las Palmas	C	1																
Ceylon: Colombia	C		2	4	2		4			1		1	1			2	1	2
	D		2	4	1		4			1		1	1			2	1	2
Plague-infected rats				4	14											1	1	1
China (see also table below):																		
Amoy	C			[5] 1			[5] 1											
Fukiang Province—Chuanchow.[6]																		
Kangping.[7]																		
Manchuria: Mansantun.[8]																		
Dutch East Indies:																		
Cheribon	C		[5] 1															
West Java	C	2,425	1,795	1,634	678	208	162	155										
	D	2,425	1,794	1,633	678	208	161	151										
Ecuador (see also table below): Guayaquil [9]	C				[5] 1													
Egypt.																		
Alexandria	C						1											
Plague-infected rats		P	P	P	P		P		P		P		P		P			
Asyut	C			3	4	11		1				1		2	2			
Girga	C	1	1	1					1		1							
Minya	C											2	1					
Qena	C											1						
Hawaii Territory [10]																		
Hawaii Island—Hamakua district—Plague-infected rats							1							1				
Kalopa [10]—Plague-infected rats																	3	
Paauhau	C			1														
	D			1														
Plague-infected rats				2														
Paauilo—Plague-infected rats															1			
Pohakea—Plague-infected rats					1													
Maui Island—Makawao district—Kahului [10] (9–10 miles from)—Plague-infected rats				2	1													

[1] Including plague in the United States and its possessions.

[2] A report dated Aug. 2, 1935, states that plague-infected rats are present at San Luis, Argentina.

[3] Report dated July 2, 1935, states that from Jan. 1, 1935, about 16 deaths from plague have occurred in Feira Santanna about 80 miles from Bahia, Brazil.

[4] A report dated Aug. 5, 1935, states that 48 cases of plague with 14 deaths had been reported at Novo Exu and Granito, Pernambuco State, Brazil.

[5] Imported.

[6] Report dated July 4, 1935, states that 76 cases of plague with 58 deaths were reported at Chuanchow, Province of Fukiang, China.

[7] A report dated Jan. 29, 1935, states that up to Jan. 23, 79 cases of plague with 78 deaths were reported near Kangping, China; the report also states that up to Jan. 21, 50 deaths from plague were reported in 6 villages of the Pe Wang Fu District, northwest of Kangping.

[8] Up to Jan. 5, 1935, 44 cases of plague with 35 deaths were reported at Mansantun, Manchuria, China.

[9] During the week ended Aug. 10, 1935, 1 case of plague was reported at Guayaquil, Ecuador.

[10] Plague-infected rats have been reported in Hawaii Territory as follows: During the week ended Aug. 10, 1935, 1 plague-infected rat was reported at Kalopa Homesteads, Paauhau, Hamakua district, Hawaii Island, and during the week ended Aug. 3, 1935, 2 plague-infected rats were reported 9 miles from Kahului, Makawao district, Maui Island.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended— May 1935: 4	11	18	25	June 1935: 1	8	15	22	29	July 1935: 6	13	20	27
India	C	7,852	6,863	9,112	6,172	1,144	787	413	226	97	80	49	15	20				
	D	3,503	3,822	5,214	3,907	880	633	343	181	75	52	35	7	14				
Bassein	C		1	6	5	1	2	1		1		1		2	2	1	1	
Plague-infected rats				1									1			1	2	
Bombay Presidency	C	1,074	1,233	974	109	45	18	13	17	6	4		2	2	2	14	14	
	D	603	686	548	154	15	10	8	10	2	3	1	1	1	2	4	8	
Bombay	C	1																
Madras Presidency	C	227	161	112	8				1	2	1			2				
	D	113	96	54	10					1	1							
Mandalay	C		2															
Moulmein	C			51	2		1											
	D			41			1											
Northwest Frontier Province	C			15														
	D			[illegible]														
Punjab	C	32	117	243	434	189	189	105	68	24	12	3	1					
	D	19	61	175	223	109	113	60	45	17	11	3						
Rangoon	C		41	1	1			1			1	1			1	1	1	5
Plague-infected rats				1		1	1											2
Indo-China (see also table below)																		
Bentre	C			1														
Kandal	C	1																
Longxuyen	C										1							
Pnom-Penh	C							1										
Saigon and Cholon	C					1							2					
Tanghai Island	C				12													
Tayninh	C										1							
Iraq:																		
Baghdad	C					1	2							1	1		1	
Baghdad Province	C					1												
Libya: Province of Tripoli—Tagiura	C																1	
Madagascar. (See table below.)																		

Morocco:																		
Draa boundaries—Tighmert	C														6			
Mogador	C																	9
	D																	3
Saffi Region	C			9	14	1												
	D			5	11	1												
Peru. (See table below.)																		
Senegal. (See table below.)																		
Siam:																		
Nagara Rajsima	C		1															
Rajpuri	C	1		1														
South-West Africa. (See table below.)																		
Tunisia: Tunis	C												1			1		1
	D												1					1
Plague-infected rats			1					2			2							
Union of South Africa:																		
Cape Province	C	3	3	5	4	11	6											
Orange Free State	C		39	9	39	4	2											
Transvaal	C			23	2		1											
United States:																		
California—Plague-infected ground squirrels:																		
Lassen County													1	1		1		
Modoc County					3	9	11	5	[11] 1	32	7	13	13					
San Luis Obispo County					1				[12] 1									
Montana — Dillon — Plague - infected ground squirrels																	1	
Oregon—Plague-infected ground squirrels:																		
Grant County																	7	
Lake County							1		1		1							
Wallowa County																3	[13] 3	

[8] Imported.
[11] Plague-infected mouse.
[12] Plague-infected wood rat.
[13] Includes 1 suspected plague-infected squirrel.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		January 1935	February 1935	March 1935	April 1935	May 1935	June 1935
Argentina (see also table above):							
Pampa Territory—Victorica	C	-	-	-	-	-	2
Santa Fe	C	-	1	1	-	-	-
Santiago de Estero Province—Frias	C	-	-	-	-	-	2
Azores	C	2	3	-	-	-	-
Bolivia: Tomina Province	C	4	4	4	-	-	-
China: Kwangchowan	C	-	-	-	20	7	-
	D	-	-	-	13	9	-
Ecuador:							
Chimborazo Province	C	-	4	-	-	-	-
Loja Province	C	-	18	17	6	4	-
Indo-China (see also table above):							
Cambodia	D	1	-	-	-	-	-
Cochin-China	C	-	-	1	2	1	9
Naotchao Island	C	-	-	20	18	-	-
Madagascar (central region)	C	510	441	211	200	128	-
	D	502	472	203	199	124	-

Place		January 1935	February 1935	March 1935	April 1935	May 1935	June 1935
Peru	C	5	15	14	13	10	4
Ancash Department	C	2	-	-	-	-	-
Lambayeque Department	C	-	-	-	1	1	-
Libertad Department	C	-	9	5	-	3	-
Lima Department	C	1	6	5	12	6	4
Callao	C	-	3	2	-	-	1
	D	-	2	2	-	-	1
Plague-infected rats		-	4	-	P	-	-
Lima	C	2	3	2	9	6	1
	D	-	-	1	7	4	1
Plague-infected rats		5	5	-	P	-	-
Senegal							
Dakar [14]	C	2	1	2	5	10	19
	D	2	1	2	4	8	13
Louga [14]	C	-	-	-	-	1	-
Rufisque [14]	C	1	-	-	17	10	8
Thies [14]	C	-	-	-	3	19	20
Tivaouane [14]	C	-	-	-	5	30	48
South-West Africa Ovamboland	C	-	[15] 88	29	-	[16] 34	-

[14] Reports incomplete.
[15] For January and February.
[16] For April and May.

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended—												
						May 1935				June 1935					July 1935			
						4	11	18	25	1	8	15	22	29	6	13	20	27
Algeria:																		
Algiers Department	C											1				1		
Constantine Department	C		1	2				1					2					
Belgian Congo (see also table below)	C	5																
Bolivia. (See table below.)																		
Brazil:																		
Porto Alegre (alastrim)	C		4															
Rio de Janeiro	C										1							
British East Africa:																		
Kenya	C					2								2	1			1
Tanganyika	C	2	3	26	3	3					2	17	37	42				
Uganda	C					1												
British Guiana	C					P					[1] 40		P					
British Somaliland	C	8	29	26	37	12	13		22	3	1			21	2	1		
British South Africa: Northern Rhodesia	C		25	27			4			2								
Canada:																		
Manitoba	C																	[2] 1
Ontario	C		2		[2] 2					[2] 1						[2] 1		[2] 1
Quebec	C																	[2] 2
Saskatchewan	C				[2] 1					[2] 1								
Ceylon:																		
Colombo	C	15	1			1			1									
Galle	C			14														
Weltara	C			50														
Chile: Chuquicamata. [3]																		
China:																		
Amoy	C	1		7	4					1	1	1		1	1			
Canton	C	7	6	12	2													
Dairen	C	4	1	4	4		6	9	6	4	4	4	5	12	2			
Foochow	C	P	P	P	P	P		P		P		P		P		P		
Hangchow	C			3	2			1		1	1		1		1			
Hankow	C	19	15	14	11	7	2	1	1	1		1	1	1				
Hong Kong	C	8	9	14	12	6	2	2				1						
Macao	D	47	53	23	2		1											
Nanking	C	1	1	5		1	1				1					1		

[1] For 4 weeks. [2] For 2 weeks. [3] Report dated July 19, 1935, states that 1 imported case of smallpox was reported at Chuquicamata, Chile.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended— May 1935 4	May 11	May 18	May 25	June 1935 1	June 8	June 15	June 22	June 29	July 1935 6	July 13	July 20	July 27
China—Continued.																		
Shanghai	C		4	7	3	3		4	5			3	5	4		2		
Swatow	C		1	2								1	2					
Tientsin	C	6	11	10	8			1	1	1	2	2	2					
Tsingtao	C	11	17	16	13	5	2	1	1	2	1							
Chosen. (See table below.)																		
Colombia	C	11	23	8	25	2	24			31			9	4				
Barranquilla	C					1												
Bogota	C					1	2											
Dahomey. (See table below.)																		
Dutch East Indies: Balei	C	4																
Egypt:																		
Dakahliya	C		57	4	20	13						2						
Gharbiya	C			3							1							
Suez	C			41														
Provinces	C	4	3	21			1				1							
Eritrea	C			5														
Formosa	C	P																
France. (See table below.)																		
French Somaliland	C	11	16	14	1													
Great Britain: England and Wales	C													1				
Greece: Salonika	C	1	2	5	1		7	7			7	19	19	19				
Guatemala. (See table below.)																		
Honduras: Tela	C	2	8		6					P	P	4			P		P	P
India	C	23,522	31,533	47,384	15,578	11,069	9,583	9,542	7,293	7,739	7,746	5,423	5,018	4,227				
	D	5,414	6,726	9,461	9,637	2,426	2,106	2,014	1,877	1,827	1,7[illegible]1	1,364	1,227	1,066				
Assam	C	27	27	47	32	10	6	6	34		24		3	1		1	5	
Bassein	C	1				41												
	D	2																
Bombay Presidency	C	4,816	7,778	11,693	10,497	2,467	2,094	2,033	1,364	1,303	1,259	1,073	701	710	635	522	515	
	D	1,019	1,445	2,241	1,970	414	376	337	303	220	235	201	142	159	133	128	105	
Bombay	C	87	235	441	455	78	81	67	58	53	52	53	42	39	30	28	23	21
	D	41	114	262	257	44	46	41	45	37	29	39	24	30	22	14	15	18
Calcutta	C	79	170	429	433	68	81	62	35	41	33	17	21	16	15	15	13	13
	D	52	103	241	326	58	57	48	25	34	30	15	15	15	12	9	11	8
Chittagong	C		41	42														

Cochin[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]													
Karachi	C	11	32	39	43	3	3	11	6	9	2	3	4	8	2	2	2	1
Madras Presidency	C	5,324	4,939	6,493	4,366	612	695	697	690	654	699	620	661	556				
	D	851	835	972	720	166	116	133	144	146	107	116	138	117				
Madras	C	36	48	49	47	6	5	5	6	4	5	4	11			2	4	4
Moulmein	C		[4]1	2					1			[4]2		3	5			1
Negapatam	C	33	43	61	20	5	1	4	3	4	1	2	1		3	1	1	1
Punjab	C	279	193	2[illegible]	133	94	65	138	146	82	72	85	66	125	71	25	50	22
Rangoon	C	24	77	216	95	26	16	10	7	5	7	3	3	7	4	6	4	2
Tuticorin	C	4		1	28			5		5			2	4		14	4	1
Vizagapatam	C	92	133	144	119	15	10	23	10	9	15	7	3	6	8	1	4	1
India (French):																		
Chandernagor	C		1	6	19	1	3			3		2						
Karikal	C	14	11	14	32	9	4	4	2	4	4	3	14	14				
Pondichery	C	91	78	110	96	18	18	16	7	20	10	8	15	8				
	D	70	72	91	78	15	16	12	8	16	5	7	11	9				
Indo-China (see also table below):																		
Haiphong	C	1		3	4	2	2	1	2	1		1		1		2		
Pnom-Penh	C			8														
Tourane	C	2	5	6														
Iran	C	4	7	1	1		4	7			3	4						
Teheran	C							1	1			3						
	D							1	1			1						
Iraq	C	34	7	6	11	7	11							3				
Arbil	C	1	4		2		1											
Baghdad	C										1							
Basra	C				2													
Mosul liwa	C	9		9	2													
Japan (see also table below)	C							9	14									
Kawasaki	C																1	
Kobe	C		1									1						
Mizuna Migifu Prefecture.[5]																		
Nagasaki	C		1	3														
Nagoya	C										1	4						
Osaka	C							1										
Taiwan	C				1													
Mexico:																		
Chihuahua	C	7	8	18	11			[6]2										
Guadalajara	D								1		2	1		2		1	1	
Mazatlan	C			1	1													
Mexico, D. F	C	37	108	161	54													
Monterrey	C			1	2													
San Luis Potosi	D				1													2
Vera Cruz	C			[4]1														
Morocco. (See table below.)																		
Mozambique. (See table below.)																		
Nigeria	C	78	372	514	399	52	172	6	62	239	41	59						
Lagos	C		1							1								

[4] Imported.
[5] A report dated June 11, 1935, states that 10 deaths from smallpox had occurred at Mizuna Migifu Prefecture, Japan.
[6] For 3 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases, D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended— May 1935 4	11	18	25	June 1935 1	8	15	22	29	July 1935 6	13	20	27
Nyasaland. (See table below.)																		
Palestine	C	2	4	2			1		2									
Peru. (See table below.)																		
Poland	C			1												1		
Portugal (see also table below).																		
Lisbon	C			5	2					1							1	
Oporto	C					1				1					1			1
Portuguese East Africa	C				4	1	3	1	2									
Salvador	C	28	74															
Saudi Arabia	C			45		19			5	15				1	1			
Siam	C	4	2															
Bangkok	C	1	1												4		2	
Sierra Leone	C	111	295	1	193		[1] 53		[1] 11		[1] 17		[2] 14					
Spain	C	16	15	34	26	7	11	6	14	8	6	14	9	8	17	4	9	
Straits Settlements: Singapore	C				7			2	4	1			4	2	2	3	7	4
Sudan (Anglo-Egyptian)	C	13	9	8	23	1	1	2		2							1	1
Syria:																		
Damascus	C	6	2															
Provinces	C	26	4	2	1													
Tunisia	C	5						1										
Turkey. (See table below.)																		
Union of Soviet Socialist Republics. (See table below.)																		

[1] For 2 weeks.

On vessels:

S. S. *Talma* at Hong Kong	1 case	Jan. 19, 1935
S. S. *Chilka* at Rangoon from Gopalpore	1 case	Jan. 23, 1935
S. S. *Aorangi* at Sydney from Vancouver	1 case	Jan. 24, 1935
S. S. *Hosang* at Singapore from Osaka	1 case	Feb. 2, 1935
S. S. *Rhona* at Port Swettenham from Madras	1 case	Feb. 22, 1935
S. S. *Mongolia* at Suez from Australia	1 case	Feb. 24, 1935
S. S. *Elenga* at Rangoon	1 case	Feb. 25, 1935
S. S. *Susang* at Singapore from Hong Kong	1 case	Feb. 27, 1935
S. S. *Empress of Britain* at Singapore from Bombay	1 case	Mar. 3, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	Mar. 11, 1935
S. S. *Kutsang* at Hong Kong	1 case	Mar. 14, 1935
S. S. *Tatsuta Maru* at San Francisco	1 case	Mar. 14, 1935
Do.	1 case	Mar. 15, 1935
S. S. *Pendeen* at Port Said from Odessa	1 case	Mar. 16, 1935
S. S. *Anhui* at Singapore from Hong Kong	2 cases	Mar. 22, 1935
S. S. *Van Heutsz* at Singapore from Amoy	1 case	Mar. 26, 1935

On vessels—Continued.

S. S. *Mulbera* at Aden	1 case	Mar. 28, 1935
S. S. *Anshun* at Swatow from Hong Kong	1 case	Mar. 28, 1935
S. S. *Varsova* at Karachi	1 case	Mar. 30, 1935
S. S. *Jinkai Maru* at Singapore from Miike	1 case	Apr. 3, 1935
S. S. *Ozarda* at Tuticorin from Akyab	1 case	Apr. 3, 1935
S. S. *Ekma* at Rangoon from Calcutta	1 case	Apr. 12, 1935
S. S. *Ipoh* at Penang from Singapore	1 case	Apr. 12, 1935
S. S. *Hong Peng* at Singapore from Amoy	1 case	Apr. 17, 1935
S. S. *Anhui* at Singapore from Hong Kong	1 case	Apr. 18, 1935
S. S. *Jalagopal* at Rangoon from Chittagong	1 case	Apr. 19, 1935
S. S. *Nagasaki Maru* at Nagasaki from Shanghai	1 case	May 10, 1935
S. S. *Karoa* at Singapore from Calcutta	1 case	May 29, 1935
S. S. *Anshun* at Singapore from Hong Kong	1 case	June 1, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	June 4, 1935
S. S. *Van Heutsz* at Singapore from Amoy	1 case	June 18, 1935
S. S. *Chitose Maru* at Nagasaki from Dairen	2 cases	July 2, 1935

Place		January 1935	February 1935	March 1935	April 1935	May 1935	June 1935
Belgian Congo (see also table above)	C	100	58	95	151	165	
Bolivia	C	52	42	42	26	33	44
Chosen	C	159	179	178	211		
Dahomey	C	3	4	13			
Finland	C				1		1
France	C	31	137	78	8	15	57
Guatemala	C		2	1			
Indo China (see also table above)	C	405	582	01	572	303	210
	D	67	69	5	92	53	57
Japan (see also table above)	C	21	8		6	45	
Morocco	C			3	8	13	12
Mozambique	C	3	1	4	3		
Nyasaland	C		13	26			37
Peru	C	37	6	16	15	28	
Portugal (see also table above)	C	51	55	43	25	41	
	D	4	9	2	1	5	
Turkey	C	5	19	28	1	13	30
Union of Soviet Socialist Republics	C	390	375				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Week ended— April 1935 6	April 13	April 20	April 27	May 1935 4	May 11	May 18	May 25	June 1935 1	June 8	June 15	June 22	June 29	July 1935 6	July 13	July 20
Algeria:																				
Algiers Department	C	5	1	12			4	14	3	6	10	19		4		28	11	5	11	2
Algiers	C										1	1	1		1					
Constantine Department	C	12	25	58	23	13	11	37	1	3	8	11	7	18	8	37	27	17	6	8
Bone	C	2																		
Constantine	C	1	6	4	1	2					2									
Philippeville	C												3	1		1			1	1
Oran Department	C			11	2			1			2		1		1	1	1	2		15
Southern Territories	C			11	2		1			6		14								
Basutoland	C	8																		
Belgian Congo	C	4		1																
Bolivia. (See table below.)																				
British East Africa. Uganda	C		4	1																
Bulgaria	C	10	1	7	2															
Chile	C	278	575	533	83			[1] 250	114			[1] 300								
Concepcion	C			8	12			[1] 16	9			[1] 33								
Iquique [2]																				
Santiago	C			46	50			[1] 157	67			[1] 148								
Valparaiso	C	22	7	5		2	1		4			1								1
China:																				
Canton	C										1									
Hangchow	C			1													2			
Harbin [3]	C						5		4	7	3	6	2							
Nanking	C			1					1			1		1						
Shanghai	C			3								1		1			1		1	
Tientsin	C	2							1	1	2	1	1	3		1				
Tsingtao	C					2										1				
Chosen. (See table below.)																				
Colombia	D	1																		
Czechoslovakia. (See table below.)																				

Egypt:																				
Alexandria	C	1	5	7	5	4	4	8	4	4	4	8	2	2	3	2	3	1	2	
Aswan	C			24		2	4	3	16	17	7	1	1	1						
Asyut	C		1	11				1										1	1	1
Beheira	C	22	162	223	57	72	63	51	55	41	45	20	13	15	12	14	5	8	4	5
Beni-Suef	C		3	2		1				1		1		1	1				1	
Cairo	C	1	7	5		4	1	1		1	2	2		1						1
Dakahliya	C	10	108	64	3	5	3	3	1	2		1			2			2		
Faiyum	C																1			
Gharbiya	C	33	236	224	36	34	38	52		45	51		36	18	33	17	15	10	18	4
Girga	C	1		7		1	1													
Minufiya	C	3	33	84	27	35	35	28	9	18	11	6	7	5	5	5	5	3	9	3
Minya	C			1	1	1	1	1	2		2		1			1	2			2
Port Said	C		1	2						[4] 1								1	1	
Qena	C			4					1		2		1							
Sharkiya	C		32	61		8	10	2	6					2	4		3	1	1	1
Suez	C			1																
Provinces	C	143	581	738	151	199	172	153	154	135	131	82	63	48	64	43	37	26	40	17
Greece. (See table below.)																				
Guatemala. (See table below.)																				
Hawaii Territory—Honolulu	C																	1		
Hungary	C	1	1			4					13	4		5						
Indo-China. (See table below.)																				
Iran	C	76	60	109	32		64	36	26	33	18	11	33	21	17	14	13	7		
Teheran	C	1		4	1				1	6	8		2	7	3	5	5	4		5
Iraq: Sulaimaniliwa	C					1	19	22	8	1		5	3	2	2	2				
Irish Free State:																				
Cork County—Castletown	C			1							1									
Waterford County—Lismore	C													1						
Japan: Tokyo	C													4	7	1	1	1		
Latvia. (See table below.)																				
Libya: Tripolitania	C		2	4																
Lithuania	C	19	40	74	7		18	17	2	19	14	2	6	6	2	3	4	1	6	3
Mexico (see also table below):																				
Guadalajara	D																1			1
Mexico, D. F.	C	61	49	72	18	17														
Progreso	D			1																
Torreon	C		1																	
Morocco	C	7	24	20	29	26	25	32	18	28	21	10	19	19	16	16	16	14	24	16
Palestine	C	2																		
Haifa	C		2	1		1	1			[4] 1	1	1		3				[4] 2		1
Jaffa	C	2				1				4	[4] 1									
Panama Canal Zone. (See table below.)																				
Peru. (See table below.)																				
Poland	C	199	291	580	163	128	138	168	150	174	139	134	127	104	80	67	67	48	52	41
	D	17	21	46	8	8	8	9	9	12	14	7	5	4						

[1] For 3 weeks.
[2] For the week ended Mar. 9, 1935, 11 cases of typhus fever were reported at San Jose nitrate camp about 42 miles from Iquique, Chile.
[3] A report dated June 25, 1935, states that about 400 cases of typhus fever occurred at Harbin, Manchuria, China.
[4] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Week ended— April 1935 6	13	20	27	May 1935 4	11	18	25	June 1935 1	8	15	22	29	July 1935 6	13	20
Portugal (see also table below): Tarouca (near)	C	26																		
Rumania. (See table below.)																				
Saudi Arabia	C			6					3											
Straits Settlements: Singapore	C	1	2	1		1		2	1			1								
Syria	C		1																	
Trans-Jordan	C		2	6	1	3	4	9	1	6	2	2	6	1	4	2				
Tunisia																				
Tunis	C			3	5	9	11	7	1	5	3				1		2			1
Provinces	C	49	67	106	39	62	63	61	42	24	42	50	34	25	11	30	15	13	34	25
Turkey. (See table below.)																				
Union of South Africa. (See table below.)																				
Union of Soviet Socialist Republics. (See table below.)																				
Yugoslavia. (See table below.)																				
On vessel S. S. *Nosa Prince* at San Francisco	C			1																

Place		January 1935	February 1935	March 1935	April 1935	May 1935	June 1935
Bolivia	C	37	32	43	86	127	111
China: Manchuria—Harbin	C			26			
Chosen	C	55	126	179	198	254	
Czechoslovakia	C	15	18	52	13	8	11
Greece	C	3	2	1	3	2	
Guatemala	C	31	20	30	35	7	6
Indo-China (French)	C	2					
Latvia	C	2		1		4	
Mexico (see also table above)	C	150	33				
	D	40	11				
Panama Canal Zone	C	1	1		1	2	1
Peru	C	13	32	10	87	96	

Place		January 1935	February 1935	March 1935	April 1935	May 1935	June 1935
Portugal	C	12			8	2	
Rumania	C	246	240	433	494	574	
Turkey	C	22	45	56	25	69	54
Union of South Africa:							
Cape Province	C	158	128	100	70	128	
Natal	C	6	4	2	30	5	
Orange Free State	C	133	69	71	26	44	
Transvaal	C	14	16	21	83	12	
Union of Soviet Socialist Republics	C	11,393	11,158				
Yugoslavia	C	55	83	117	104		

YELLOW FEVER

[C indicates cases, D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Week ended— April 1935: 6	13	20	27	May 1935: 4	11	18	25	June 1935: 1	8	15	22	29	July 6, 1935
Bolivia: Santa Cruz Department—Chuchio.[1]																		
Brazil:																		
Goyaz State	C												4			2		
	D			11	1	1		8	5	1								
Maranhao State	C																1	
Mato Grosso State	C															2		
Minas Geraes State[2]	C												6			6	2	4
	D								3	6						6	2	
Para State	C																1	
Sao Paulo State	C																1	
Colombia:																		
Intendencia of Meta—Restrepo[3]	C			2						1								
	D	4	1															
Villavicencio	D		1															
Dahomey:																		
Parakou	C												[4] 1					
Porto Novo.[5]																		
French Equatorial Africa: Middle Congo—Pointenoire	C			[4] 2														
Gambia: Bathurst	C	1																
Gold Coast:																		
Aperadi	C	3																
	D	1																
Cape Coast.[6]																		
Oda	C	1																

[1] During the month of June 1935, 1 case of yellow fever was reported at Chuchio, Santa Cruz Department, Bolivia.
[2] Yellow fever has been reported in Minas Geraes State, Brazil, as follows: During the week ended July 20, 1935, 2 cases, for the week ended Aug. 10, 1935, 1 case, 1 death.
[3] During the week ended July 20, 1935, 1 fatal case of yellow fever was reported at Restrepo, Intendencia of Meta, Colombia.
[4] Suspected.
[5] During the week ended July 20, 1935, 1 fatal case of yellow fever was reported in the vicinity of Porto Novo, Dahomey.
[6] During the week ended Aug. 10, 1935, 1 fatal case of yellow fever was reported at Cape Coast, Gold Coast.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 30, 1934–Jan. 26, 1935	Jan. 27–Feb 23, 1935	Feb. 24–Mar 30, 1935	Week ended— April 1935 6	13	20	27	May 1935 4	11	18	25	June 1935 1	8	15	22	29	July 6, 1935
Ivory Coast:																		
Banguoanou	C		1															
Bassam (near)	C			1														
Bobo-Dioulasso	C		1															
Dimbokro	C	1																
Gagnoa	C			1														
Ouagadougou	C		1															
Nigeria: Kano	C	1																
Niger Territory: Zinder	C	1																
Sierra Leone:																		
Freetown	C			2														
Hill Station (near Freetown)	C	1																
Togo:																		
Agoueve	C									1								
Koumea	C									1								
Sokode	C											1						

X

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FURTHER STUDIES ON THE PRODUCTION OF DIBENZANTHRACENE TUMORS IN PURE STRAIN AND STOCK MICE

By H. B. ANDERVONT, *Biologist, United States Public Health Service, Office of Cancer Investigations, Harvard Medical School*

In a previous communication (*1*) it was shown that subcutaneous injections of a 1:2:5:6-dibenzanthracene-lard solution induced sarcomas in pure strain mice and that the induced tumors were similar to spontaneous tumors arising in pure strain mice in that they grew only in animals of the same strain in which they originated. This report deals with the results of 3 more experiments concerning the response of both pure strain and stock mice to injections of a 1:2:5:6-dibenzanthracene-lard solution.

EXPERIMENTAL ANIMALS

Only adult male and virgin female mice weighing at least 20 grams were used.

All pure strain mice were obtained from the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine. The various strains employed are described as follows:

Strain A.—Inbred since 1918. Albino mice with a high incidence of spontaneous tumors in breeding females.

Strain C_3H.—Inbred since 1921. Color of wild house mice. The breeding females have a high incidence of mammary carcinomas.

Strain CBA.—Inbred since 1921. Color of wild house mice. These mice show a low incidence of spontaneous tumors.

Strain D.—Inbred since 1909. Dilute brown color. The breeding females show a high incidence of spontaneous tumor.

Stock mice.—Albino mice purchased from a local dealer and not pure strain animals.

TECHNIQUE

The dibenzanthracene-lard solution was prepared as follows: The lard was filtered at 38°C. and dibenzanthracene was then added in the proportion of 4 mg to each cubic centimeter of lard. The dibenzanthracene was dissolved by heating the lard to 140°C. The

resulting solution was kept at +4°C. until used, when it was heated to 40°C.

All injections were made subcutaneously in the right axillary region by means of an 18- or 20-gage needle and a 1-cc syringe.

Experiment 1

The purpose of this experiment was two-fold: First, to determine the relative susceptibility of various strains of mice to the carcinogenic action of dibenzanthracene; second, to ascertain whether repeated injections of the dibenzanthracene-lard solution would produce more tumors than a single injection. In a previous experiment (*1*) the mice had received 3 subcutaneous injections; but since the first tumor appeared only 15 days after the last injection, the necessity for the final injection was not established. Accordingly, the mice were divided into 3 groups, designated as groups A, B, and C in the following table, which shows the time of injections and the amounts given:

Date of injection	Amount	Group
	cc	
Feb. 15, 1934	0. 2	A, B, and C.
Mar. 1, 1934	. 2	B and C.
Mar. 8, 1934	. 2	C.

The first tumors were noted on May 22, 1934, just 96 days after the first injection. The mice were examined each week up to September 7, 1934, when the experiment was discontinued. Mice dying during the course of the experiment and all mice living at the conclusion of the experiment were autopsied and examined macroscopically for the presence of tumor. The results of the experiment are presented in table 1. It is seen that many mice of both the D and C_3H strains died after receiving 3 injections of the dibenzanthracene-lard solution. However, the response of all 3 groups of stock mice and those of strains D and C_3H that had received 1 and 2 injections indicate that a single injection produced fewer tumors than did the repeated injections.

TABLE 1.—*Experiment 1: Results of injection of dibenzanthracene-lard solution*

Strain	Number of injections	Number of mice injected	Died from other causes	Number of mice developing tumor	Percent	Number living on Sept. 7, 1934
Stock	1	42	1	14	33	27
Do	2	43	9	17	40	17
Do	3	55	6	29	53	20
D	1	29	11	10	34	8
Do	2	30	2	15	50	13
Do	3	54	17	27	50	10
C_3H	1	32	6	24	75	2
Do	2	33	5	28	85	0
Do	3	30	15	15	50	0

It is also of interest to note that a single injection of the solution containing but 0.8 mg of 1:2:5:6-dibenzanthracene elicited tumors in a considerable number of mice. In fact, 75 percent of the C_3H mice developed tumors following the injection of this small quantity of dibenzanthracene. Such results indicate that a much smaller quantity of dibenzanthracene should be capable of inducing tumor growth.

The C_3H strain mice appear to be very susceptible to the carcinogenic action of dibenzanthracene. This fact is emphasized further in table 2, in which the time of appearance of the tumors is presented. By the end of the eighteenth week, 53 percent of the C_3H strain animals, 7 percent of the D strain mice, and only 1 percent of the stock mice had developed tumors.

TABLE 2.—*Experiment 1: Time in weeks of the appearance of dibenzanthracene-lard tumors*

Time in weeks		13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Total number of tumors
Strain	Number of injections	Numbers of tumors observed																
Stock	1	---	--	--	---	---	---	1	1	---	1	---	1	3	2	2	3	14
Do	2	---	---	--	---	---	---	---	1	2	--	4	1	5	2	1	1	17
Do	3	---	---	1	---	--	1	1	4	4	--	2	4	4	3	3	2	29
D	1	---	---	---	---	---	---	1	1	--	-	2	2	---	---	1	3	10
Do	2	---	---	1	--	2	2	2	2	2	1	2		.	1	---	---	15
Do	3	2		---	---	1	--	2	2	3	3	3	3	---	3	1	4	27
C_3H	1	4	3	2	2	1	2	4	2	2	2	---	---	---	---	---	---	24
Do	2	3	10	3	4	1	4	1	1	---	---	1	---	--	---	---	---	28
Do	3	2	2	5	---	---	3	1	1	1	---	---	---	---	---	---	---	15

Experiment 2

In this experiment, animals of strains C_3H, A, and CBA received two injections of the dibenzanthracene-lard solution. Each injection consisted of 0.2 cc of the solution. The first was made on June 6, 1934, and the last on June 13, 1934. Every mouse was autopsied and examined for tumor in the internal organs. The first tumor appeared September 5, 1934, 91 days after the initial injection. The last living mouse developed a tumor on January 9, 1935. The results are of interest because, during the course of the experiment, only three mice died from causes other than tumor. The findings are presented in tables 3 and 4. Table 3 shows the high degree of susceptibility of all three strains to the carcinogenic action of 1:2:5:6-dibenzanthracene. Table 4 confirms and extends the findings in experiment 1 as regards the earlier appearance of tumors in the C_3H strain mice. At the end of the eighteenth week, 80 percent of the C_3H mice, 25 percent of the A mice, and none of the CBA animals had developed tumors. It is also of interest to note that tumors began to appear in the CBA strain just as a tumor developed in the last of the C_3H mice.

TABLE 3.—*Experiment 2: Results of injection of dibenzanthracene-lard solution*

Strain	Number of mice injected	Died from other causes	Number of mice developing tumor	Percent
C_3H	15	0	15	100
A	24	1	23	96
CBA	19	2	17	89

TABLE 4.—*Experiment 2: Time in weeks of the appearance of dibenzanthracene-lard tumors*

Time in weeks	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Total number of tumors
Strain	Numbers of tumors observed																
C_3H	1	----	1	2	4	4	2	1	----	----	----	----	----	----	----	----	15
A	----	1	1	1	2	1	----	2	3	4	2	----	----	3	1	2	23
CBA	----	----	----	----	----	----	----	2	3	3	4	----	----	1	4	----	17

HISTOLOGICAL FINDINGS

When examined microscopically, practically all the tumors arising at the site of injection were found to be spindle-cell sarcomas. However, as in a previous experiment (*1*), a few were of the mixed type containing many round or giant cells. Active invasion of voluntary muscle was seen in every section.

Transplantation of tumors arising in pure strain mice into other mice of the same strain was easily accomplished.

LUNG TUMORS

In the earlier report (*1*) brief reference was made to the presence of lung tumors in mice receiving dibenzanthracene-lard injections. Throughout both experiments 1 and 2, all mice dying or killed were examined for macroscopic evidence of tumor in the lungs and other organs. A considerable number of lung tumors were found in the stock animals of experiment 1. Referring back to table 1, it is seen that 64 of the stock mice were alive on September 7, 1934, when the experiment was concluded. All these animals were killed and examined carefully for any evidence of tumor at the site of injection as well as in the internal organs. It was found that 33 of these animals had lung tumors, although all were free from tumor at the site of the dibenzanthracene-lard injections. The findings, as regards lung tumors in experiment 1, are summarized in table 5. The C_3H mice are omitted from the table, since all were free from lung tumors according to macroscopic examination. It is seen that about 45 percent of the stock mice had tumors in their lungs.

The presence of lung growths in the mice of experiment 2 is shown in table 6. In this experiment, the mice of only strain A showed

TABLE 5.—*Experiment 1: Summary of lung tumor findings*

Strain	Number of injections	Number of mice injected	Number of mice developing both lung and subcutaneous tumors	Number of mice developing lung tumors only	Total number of lung tumors	Percent
Stock	1	42	9	10	19	45
Do	2	43	9	10	19	44
Do	3	55	12	13	25	45
D	1	29	1	0	1	3
Do	3	54	1	0	1	2

any evidence of lung tumors. It was impossible to obtain data on the presence of lung tumors alone in this experiment, since all the strain A mice had tumors at the site of injection.

TABLE 6.—*Experiment 2: Summary of lung tumor findings*

Strain	Number of mice injected	Number of mice developing lung tumors	Percent
A	24	16	66
C_3H	15	0	0
CBA	19	0	0

Experiment 3

The presence of lung tumors in stock mice was confirmed in this experiment. The original purpose of the experiment was to ascertain the influence of a local irritant upon the development of dibenzanthracene tumors. With this end in view, one-half the mice received injections of the dibenzanthracene-lard solution, and the other half the same solution plus a trace of kaolin mixed with the injected material. The mice received 3 injections of 0.2 cc each; the first on February 16, 1934, the second on March 1, 1934, and the last on March 8, 1934. The first tumor appeared on June 13, 1934. The mice were examined each week up to September 7, 1934. At that time all the survivors were killed and examined macroscopically for tumor growth at both the site of injection and in the internal organs.

It was found that the presence of the irritant had no influence on the number or time of appearance of the tumors. Hence, the experiment is reported as furnishing additional evidence that the stock mice responded to subcutaneous injections of dibenzanthracene-lard solution by the production of lung tumors. The results are presented in table 7. Here, again, a considerable number of mice (24 percent) had lung tumors without any macroscopic evidence of tumor at the site of injection.

TABLE 7.—*Experiment 3: Summary of subcutaneous and lung tumors in mice following dibenzanthracene-lard injections*

Strain	Number of mice injected	Number of mice developing subcutaneous tumors	Number of mice developing both lung and subcutaneous tumors	Number of mice developing lung tumors only	Total number of lung tumors	Percent of lung tumors
Stock	53	21	8	13	21	40

SUMMARY

The results of the experiments again confirm the findings of Burrows, Hieger, and Kennaway (*2*) in showing that the subcutaneous injection of dibenzanthracene-lard solution induces sarcomas in mice.

They also confirm the previous findings made in this laboratory in showing that the solution induces tumors in pure-strain mice and that the induced tumors grow in members of the strain in which they originated.

In addition it has been shown that a single injection of dibenzanthracene solution containing 0.8 mg of dibenzanthracene produces tumors in all the strains of animals employed. However, the results of experiment 1 indicate that repeated injections produce a higher percentage of tumors.

The results obtained in experiment 2 demonstrate the extreme susceptibility of pure-strain mice of strains A, C_3H, and CBA to the carcinogenic action of dibenzanthracene. The findings as regards strain CBA are more striking when it is recalled that these mice, under normal conditions, develop very few spontaneous tumors.

It has also been shown that the strain C_3H mice respond to the dibenzanthracene injections by growing tumors earlier than any of the other strains used in these experiments. The reason for the earlier appearance of tumors in C_3H mice is not clear. The strain shows a high incidence of spontaneous tumors in breeding females, but in this laboratory the spontaneous tumor rate among the mice of strain C_3H is no higher than that of strain A mice. It would be of interest to ascertain whether the C_3H mice respond earlier to the action of other carcinogenic agents.

The results presented in tables 2 and 4 indicate that those animals belonging to strains possessing a tendency to the development of spontaneous tumors (strains A, C_3H, and D) react earlier to the carcinogenic activity of dibenzanthracene than do the ordinary stock mice or mice of strain CBA, both of which develop very few spontaneous growths.

The presence of lung tumors in mice following the subcutaneous injection of dibenzanthracene-lard solution cannot be explained at

this time. Practically all the lung tumors appeared in strain A or stock mice. The only common factor of these mice is their albino coat color. The mice of strain A are of pure stock and show a tendency toward the development of spontaneous tumors, but the ordinary stock mice used in this laboratory rarely develop spontaneous growths. While it is known that mice of strain A do possess a tendency toward the development of lung tumors, routine autopsies of these animals reveal very few such growths. No instance of lung tumor has been found in 100 routine autopsies of the stock mice.

Microscopic examination of lung growths showed that practically all were carcinomas, regardless of whether the mouse had a subcutaneous sarcoma or no tumor at the site of the dibenzanthracene-lard injection. Thus, it may be assumed that the lung growths are primary tumors. The problem concerning lung tumors is receiving further consideration.

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(2) Burrows, H., Hieger, I., and Kennaway, E. L.: Am. Jour. Cancer, **16**, 57 (1932).

ACUTE RESPONSE OF GUINEA PIGS TO VAPORS OF SOME NEW COMMERCIAL ORGANIC COMPOUNDS

VIII. BUTANONE[1]

By F. A. Patty,[2] H. H. Schrenk,[3] and W. P. Yant[4]

This report on the acute response of guinea pigs to butanone (methyl ethyl ketone) vapor is the eighth of a series of similar reports[5] which deal with studies pertinent to establishing a criterion of the

[1] Contribution from the Pittsburgh Experiment Station, U. S Bureau of Mines, Pittsburgh, Pa. Published by permission of the Director, U. S. Bureau of Mines. Work on manuscript completed Nov. 30, 1934.

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[4] Supervising chemist, health laboratory section, and supervising engineer, Pittsburgh Experiment Station, U. S. Bureau of Mines, Pittsburgh, Pa.

[5] Acute response of guinea pigs to vapors of some new commercial organic compounds:

I. Ethylene dichloride. Sayers, R. R., Yant, W. P., Waite, C. P., and Patty, F. A. Pub. Health Rep., vol. 45, no. 5, Jan. 31, 1930, pp. 225-239. (Reprint No. 1349.)

II. Ethyl benzene. Yant, W. P., Schrenk, H. H., Waite, C. P., and Patty, F. A. Pub. Health Rep., vol. 45, no. 22, May 30, 1930, pp. 1241-1250. (Reprint No. 1379.)

III. Cellosolve. Waite, C. P., Patty, F. A., and Yant, W. P. Pub. Health Rep., vol. 45, no. 26, June 27, 1930, pp. 1459-1466. (Reprint No. 1389.)

IV. Ethylene oxide. Waite, C. P., Patty, F. A., and Yant, W. P. Pub. Health Rep., vol. 45, no. 32, Aug. 8, 1930, pp. 1832-1843. (Reprint No. 1401.)

V. Vinyl chloride. Patty, F. A., Yant, W. P., and Waite, C. P. Pub. Health Rep., vol. 45, no. 34, Aug. 22, 1930, pp. 1963-1971. (Reprint No. 1405.)

VI. Dioxan. Yant, W. P., Schrenk, H. H., Waite, C. P., and Patty, F. A. Pub. Health Rep., vol. 45, no. 35, Aug. 29, 1930, pp. 2023-2032. (Reprint No. 1407.)

VII. Dichloroethyl ether. Schrenk, H. H., Patty, F. A., and Yant, W. P. Pub. Health Rep., vol. 48, no. 46, Nov. 17, 1933, pp. 1389-1398. (Reprint No. 1602.)

toxicity of some chemical products which have recently become commercially available for industrial application.

This investigation was undertaken at the request of Stanco, Inc., and was conducted jointly with the United States Bureau of Mines. The experiments were conducted at the Pittsburgh Experiment Station of the Bureau of Mines.

SCOPE OF WORK

The scope of the work included a study of the toxicity of, and the physiological response of guinea pigs exposed to, vapors of butanone (methyl ethyl ketone). Only acute effects as produced by a single exposure were studied. The experiments were planned to cover a range of concentrations which would produce slight or no response, moderate response, and serious response.

CHEMICAL AND PHYSICAL PROPERTIES

The butanone used in this study was a commercial grade of methyl ethyl ketone sold for industrial use. It was water clear and had an odor resembling that of acetone. An examination of the material gave the following physical properties:

Specific gravity

15.6°/15.6° C	0.8095
20°/15.6° C	.8051

Boiling range

Distillate, percent	Temp., °C., corrected to 760 mm	Distillate, percent	Temp., °C., corrected to 760 mm
Initial boiling point	78.5	50.0	79.8
1.1	78.7	60.0	79.9
3.3	78.9	70.0	80.0
6.7	79.0	80.0	80.3
10.0	79.1	90.0	80.5
14.5	79.2	95.0	81.9
17.8	79.3	96.0	82.5
20.0	79.3	97.0	83.2
23.0	79.4	98.0	84.5
30.0	79.5	99.0	88.7
35.6	79.6	99.5	90.7
40.0	79.6		

0.2 percent residue, 0.3 percent lost

As determined by the Bureau of Mines, these physical properties agree closely with the specifications furnished by the manufacturer for the commercial product. The manufacturer also specified the product to be 92.3 percent ketone as determined by acetylation.

The boiling point of butanone as given in the International Critical Tables [6] is 79.6° C.

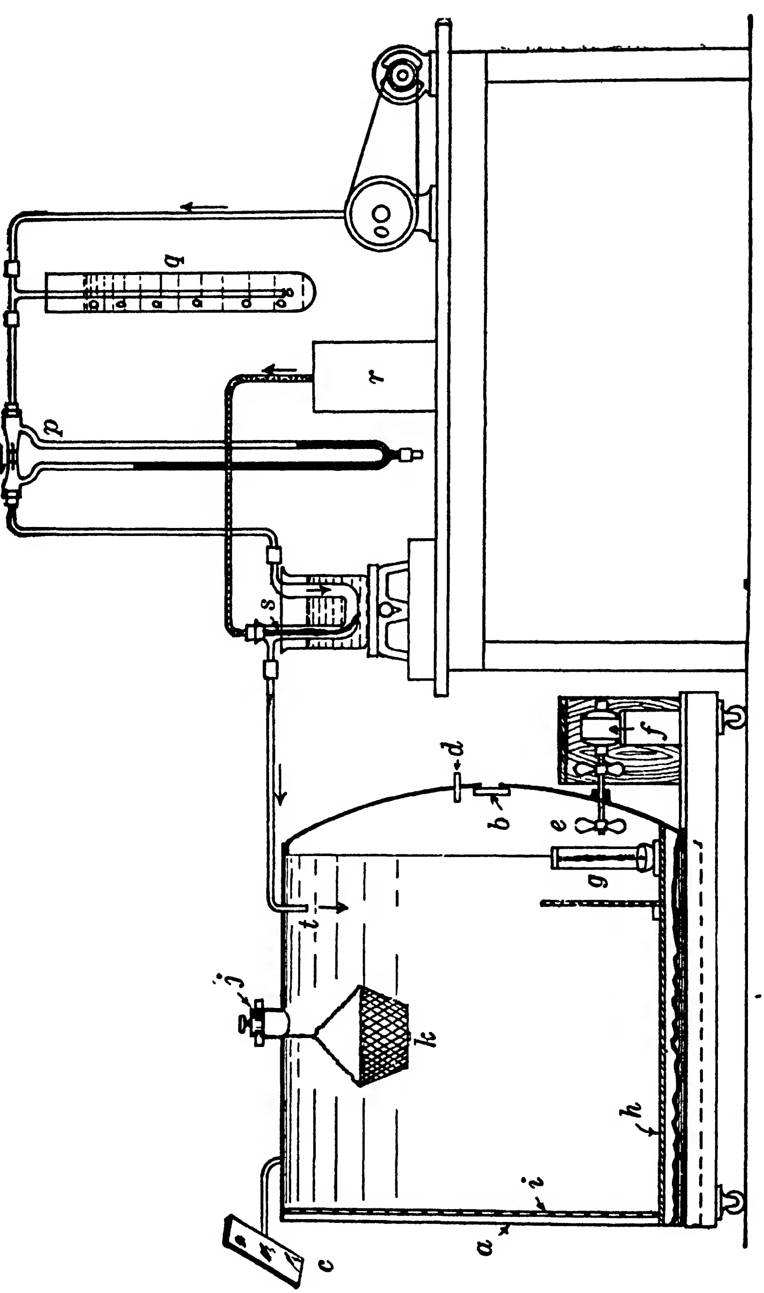
[6] International Critical Tables, first edition, 1928, vol. 3, p. 218.

USE OF BUTANONE

Butanone is at present employed in the manufacture of pyroxylin solutions, chiefly in the artificial leather and lacquer industries, and is also used in paint removers. Although at present limited largely to these uses, butanone has possibilities as a solvent in other fields.

TEST APPARATUS

Figures 1 and 2 show an explosion chamber used for exposing animals to vapor-air mixtures which were near or within the flammable range. The chamber was made from a second-hand compressed-air receiver by cutting off one end. It was 41 inches in diameter, 40 inches long on the sides, and 46 inches long at the center, the closed end being convex. The walls and convex end were steel plate, approximately ¼-inch thick. The open end was closed by covering it with a sheet of clear cellophane, *a*, held in place by a large rubber band made from the inner tube of an automobile tire. This cellophane served as a relief diaphragm in case an explosion occurred, and also admitted light. A 2-inch flanged hole, *b*, in the convex closed end of the cylinder, covered with a ¾-inch thick glass plate, served as an observation window. Animals in the chamber were observed without risk by means of a mirror, *c*, set in front of the transparent cellophane relief diaphragm and so inclined that a person at the protected end of the chamber could view the interior by reflection. A small opening at *d* was used for withdrawing samples of the chamber atmosphere for analysis. A stirring fan, *e*, was connected by a shaft through a close-fitting bushing to an externally located motor, *f*. The fan-shaft carried an externally located auxiliary fan for ventilating the space between the bushing and the motor (thus minimizing the possibility of a localized accumulation of flammable vapor-air mixture) and for drawing cooling air through the motor as required by the particular small commercial fan motor used for the apparatus. The internal stirring fan was used chiefly for keeping the vapor-air mixture homogeneous; in experiments in which an attempt was made to saturate the air with vapor it was also used to facilitate the evaporation of liquid from wicks, *g*, suspended in a reservoir of liquid. A wood floor, *h*, which had numerous 1-inch holes for circulation of air underneath, was placed in the bottom of the chamber. A wire screen, *i*, prevented the animals from rupturing the cellophane diaphragm. An opening about 4 inches in diameter at *j* was closed by a large removable cork, and through this opening guinea pigs were introduced into the chamber. The pigs were placed in a wire basket, *k*, suspended by a cord, and then lowered to the floor of the chamber. The pigs could thus be placed in the chamber after the desired vapor-air mixture had been created; and, by reversing the procedure, any animal or group could



PB-364

FIGURE 1.—Diagrammatic sketch of apparatus for making exposure to vapor-air mixtures close to or within the explosive limit.

FIGURE 2 —PHOTOGRAPH OF APPARATUS FOR EXPOSING ANIMALS TO VAPOR-AIR MIXTURES CLOSE TO OR WITHIN THE EXPLOSIVE LIMIT

be removed at any time during the experiment without significant loss of the chamber atmosphere.

The chamber was mounted on a truck frame to facilitate moving. Owing to the danger of destruction of laboratory windows and other laboratory equipment by the explosion waves set up by the flammation of the comparatively large volume of flammable vapor-air mixture, all experiments with this apparatus were conducted outside the laboratory.

Figures 1 and 2 also show the apparatus for vaporizing the liquid and preparing the vapor-air mixtures. These mixtures were usually prepared by a dynamic method whereby a measured flow of liquid material was continuously vaporized in a measured stream of air. A constant supply of air was delivered from the blower, *o*, through the flow-meter, *p*, the rate being controlled by the pressure regulator, *q*. The liquid to be vaporized was delivered at a constant rate by proportioning pump, *r* (shown only diagrammatically in fig. 1), onto the wick, *s*, contained in a U-tube immersed in an oil bath heated by a hot plate to a temperature above the boiling point of the liquid to be vaporized. The air supply passed over the wick and carried the vapor into the chamber at *t*. The escape of the vapor-air mixture was mainly around the edge of the diaphragm and to a slight extent at the stuffing box of the fan shaft. A slight internal pressure prevented any inward leakage. The amounts of liquid and air were varied to produce the desired concentrations, but the total volume of air passed through the chamber always exceeded two air changes an hour, which was sufficient to prevent oxygen deficiency or accumulation of carbon dioxide from the respiration of the animals.

In preparing the highest concentration available on complete saturation of the air (approximately 10 percent vapor in air by volume), all the chamber openings were closed and air was blown by means of the stirring fan across a series of wicks suspended in a reservoir of butanone. The fan and saturator were operated several hours before the pigs were placed in the chamber and continued during the entire experiment, in order to create and maintain as nearly a saturated condition as could be attained practically at the prevailing temperature, approximately 30° C.

Experiments with 0.33 percent butanone vapor in air, which is well below the lower flammable limit, were performed in a larger chamber, which has been described in a previous publication.[7]

[7] Yant, W P, Schrenk, H H, and Sayers, R R; Methanol antifreeze and methanol poisoning. Ind. & Eng. Chem., vol 23 (1931), pp. 551-555

COMPUTATION AND ANALYSIS OF VAPOR-AIR MIXTURES

For control purposes in creating experimental conditions, the concentrations of vapor in air were estimated by computation from the quantity of air flowing through the meter and the quantity of liquid delivered to the vaporizer. This procedure was necessarily omitted in the experiments with air saturated with butanone vapor, in which a static method was employed. All concentrations were finally determined during the course of the experiments by chemical analysis, and in some cases by adsorption by air-equilibrated charcoal.

The chemical method of analysis consisted of pipetting 50 cm^3 of a solution of N/1 sodium hydroxide into a flask, which was closed by a rubber stopper fitted with a glass stopcock. The flask was connected in series with a mercury U-gage and partly evacuated; then the stopcock was closed. This sample receiver was then connected to a well-purged sampling tube and filled by vacuum displacement. The volume of vapor-air taken was calculated from the U-gage measurement at the end of the evacuation procedure and at the prevailing temperature and barometric pressure. The tube was shaken to absorb the butanone; an excess of N/10 iodine was slowly added. The sodium hydroxide was permitted to stand for 15 minutes, then was neutralized with 2N sulphuric acid, and a slight excess (about 0.3 to 0.5 cm^3) of acid was added. The excess iodine was determined by titration with N/20 sodium thiosulphate solution.

Table 1 gives the results of analyses of a standard solution of butanone in water made as a check on the accuracy of the method of analysis.

TABLE 1.—*Results of the analysis of portions of a standard aqueous solution of butanone*

Butanone taken by computation from standard	Butanone found by analysis	Recovery, percent
Mg	*Mg*	
16.1	17.1	106
32.2	34.9	108
32.2	34.9	108
32.2	34.9	108
32.2	34.6	107
48.3	51.7	107
48.3	51.4	106
48.3	51.3	106

The average recovery in 8 determinations was 107 percent. In a report on the determination of methyl ethyl ketone, Cassar[8] has shown that if the reaction of 6 moles of iodine per mole of ketone is taken as 100 percent, a recovery of 110.6 percent is obtained. This

[8] Cassar, H. A. Determination of isopropyl alcohol in presence of acetone, and of methyl ethyl ketone in presence of secondary butyl alcohol. Ind. & Eng. Chem., vol. 19 (1927), pp. 1061–1062.

increase is due apparently to the influence of a secondary reaction in which 10 moles of iodine react with 1 mole of ketone, as shown in the following equations:

$$CH_3CH_2COCH_3+3I_2+3NaOH \rightleftharpoons CHI_3+CH_3CH_2COOH+3NaI+2H_2O \quad (1)$$

$$CH_3CH_2COCH_3+5I_2+4NaOH \rightleftharpoons 2CHI_3+CH_3COOH+4NaI+3H_2O \quad (2)$$

On the basis of 110.6 being equivalent to 100 percent, the result, 107 percent, obtained by the Bureau of Mines for the commercial product used indicates it to be approximately 96.7 percent ketone. The commercial product was reported by the producers to contain 92.3 percent ketone, as determined by acetylization. The impurities in the ketone were also reported by the manufacturer to be primarily the corresponding secondary alcohol.

As an average recovery of 107 percent was obtained (table 1) for known amounts of the standard solution of commercial butanone, the values obtained for the amount of butanone in the vapor-air mixtures used in animal experiments (table 2) were corrected by multiplying the determined value by $\frac{100}{107}$, or 0.935.

Table 2 gives the concentrations computed from the volume of air and the amount of butanone vaporized, and the concentration found by chemical analysis for vapor-air mixtures used in animal experiments. The conversion from milligrams per liter, as determined chemically, to percent by volume is made on the basis that 1 gram molecular weight of butanone is equivalent to 22.4 liters of vapor at 0° C. and 760 mm Hg.

TABLE 2.—*Results of analysis of exposure atmospheres* [1]

Concentration by—		Concentration by—	
Computation	Analysis	Computation	Analysis
(2)	[3] 9.6	0.98	0.89
(2)	[3] 9.0	.92	.85
(2)	[3] 11.4	.96	1.18
(2)	8.7	.96	.96
4.2	3.6	1.02	.83
3.6	3.5	1.03	.91
3.6	3.2	.92	.86
3.2	3.6	.95	.95
3.2	2.9	.33	.30
3.3	2.9	.33	.32
1.04	1.05	.32	.35
1.01	1.22	.30	.32
.98	.89	.32	.28

[1] Concentration in percent by volume at 25° C. and 760 mm pressure. To convert to mg per liter, multiply by 29.5.
[2] Concentration obtained by recirculation of air (30° C., 740 mm pressure) over wicks wet with butanone. No computed composition.
[3] Determined by adsorption on air-equilibrated charcoal.

The maximum concentration attainable at 30° C. and 740 mm pressure averaged approximately 10 percent. The remainder of the results in table 2 represent experimental atmospheres prepared by continuously volatilizing a measured amount of butanone in a measured volume of air. For succeeding experiments this maximum of 10 percent was successively reduced by a factor of approximately one-third until no response was observed after 13.5 hours' exposure. By following this plan the general order of concentrations used was 10.0, 3.3, 1.0, and 0.33 percent by volume.

PROCEDURE FOR EXPOSING ANIMALS

In all experiments the desired concentration was created and analyzed before the guinea pigs were admitted. The pigs were exposed in groups of 6, several such groups being included in each experiment to permit study of the time-concentration effect. In the use of the explosion chamber, the animals to be exposed longest were admitted first. The second and other groups were added at a time which would permit the predetermined period of exposure for each group and allow the exposure of all to be terminated simultaneously. This procedure was usually reversed in the use of the chamber for nonflammable vapor-air mixtures. All the animals used for exposure to a particular vapor-air mixture were started at the same time, and groups were removed after predetermined intervals. Chemical analyses were continued during the course of exposure.

The description and information regarding the care of animals will be found in the report on ethylene dichloride.[9]

RESULTS OF TESTS

This report presents summarized results pertinent to signs or symptoms, fatality, and gross pathology.

OBJECTIVE SYMPTOMS

Control animals.– No signs or symptoms were exhibited by the 24 control guinea pigs taken at random from the stock animals used in these tests. No deaths occurred.

Exposed animals.—The signs or symptoms exhibited by animals exposed to butanone vapor in the order of their occurrence were as follows: Irritation of the nose and eyes manifested by rubbing nose with the forepaws and squinting; lacrimation; incoordination; narcosis; gasping type of respiration; and death. Table 3 gives the average time necessary to produce these symptoms by various concentrations of butanone vapor in air. The figures given indicate the average time for occurrence of the symptom, excepting those in parentheses, which

[9] See 7, footnote 5.

indicate that the particular symptom did not occur in the maximum period of exposure as given.

TABLE 3.—*Signs and symptoms produced in guinea pigs exposed to vapors of butanone*

Type of symptom	Concentration of vapor in percent by volume			
	10.0	3.3	1.0	0.33
	Duration of exposure, minutes			
Nose irritation (rubbing nose)	(1)	1	2	2 (810)
Eye irritation (squinting)	(1)	1	4	2 (810)
Lacrimation	1	4	40	2 (810)
Incoordination	3-5	18-30	90	2 (810)
Narcosis (unconsciousness)	10-11	48-90	240-280	2 (810)
Gasping-type respiration	20-30	180	2 (810)	2 (810)
Death	45-55	200-260	2 (810)	2 (810)

1 Evident almost immediately after beginning exposure.
2 Not observed during maximum exposure as given in parentheses.

No abnormal signs were observed during or following an exposure of 810 minutes to 0.33 percent butanone vapor in air by volume. Signs of irritation of the nose and eyes occurred in 2 and 4 minutes, lacrimation in 40 minutes, incoordination in 90 minutes, and unconsciousness in 240 to 280 minutes, but no gasping respiration or deaths occurred during or following an exposure of 810 minutes to 1.0 percent vapor in air. The time for occurrence of these symptoms decreased rapidly with increases in concentration, and death was produced by 45 and 200 minutes' exposure to 10.0 and 3.3 percent vapor in air, respectively.

GROSS PATHOLOGY

Control animals.—The 24 control animals killed for autopsy exhibited no significant gross pathology.

Exposed animals.—The gross pathological findings in animals that died during exposure (see fig. 3) were slight congestion of the brain and marked congestion of the systemic organs. The cornea of all pigs exposed to 10 percent vapor for 30 minutes or more became opaque. This condition gradually improved in pigs that lived 4 and 8 days following exposure, and at the end of 8 days the eyes were nearly normal. This condition was not observed in animals exposed to lower concentrations.

The lungs of the animals that died were emphysematous and markedly congested. Exposure to conditions which caused marked incoordination, narcosis, and a gasping type respiration produced a slight congestion of the brain, with moderate to marked congestion of lungs, liver, and kidneys in animals killed immediately after exposure. These findings were absent in nearly all animals killed for autopsy 4 to 8 days following exposure.

SUMMARY OF FATALITY AND PHYSIOLOGICAL RESPONSE

Figure 3 shows graphically the fatality and summary of the response of guinea pigs exposed to butanone vapor in air. The results of each experiment are designated by a symbol which represents one of four different degrees of severity. The symbols describe the results obtained for the majority of a group of 6 animals exposed to a given condition. In addition to representing the response of each group by symbols, the symbols have been separated into three general fields or zones of probable response.

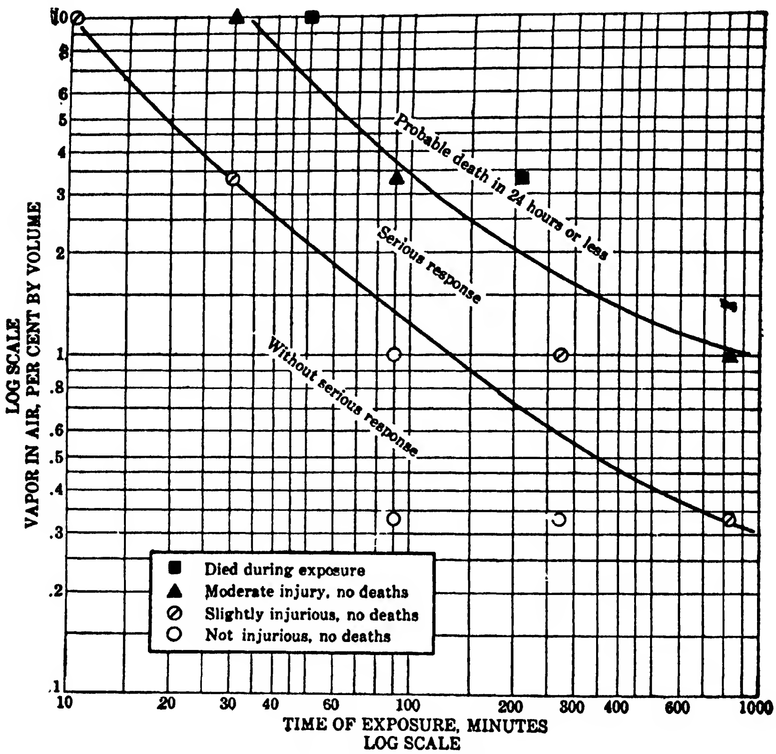


FIGURE 3.—Acute effects of exposure of guinea pigs to butanone vapor in air.

Table 4 gives concentrations, obtained by direct experiment or extrapolated from table 3 and figure 3, which produce the degrees of response generally reported for noxious gases. These data may be compared with toxicological data for other compounds.[10 11 12 13 14]

[10] See footnote 5.
[11] Sayers, R. R., Yant, W. P., Thomas, B. G. H., and Berger, L. B.: Physiological response attending exposure to methyl bromide, methyl chloride, ethyl bromide, and ethyl chloride. Pub. Health Bull. 185 (1929).
[12] International critical tables, first edition, 1927, vol. 2, p. 318; also see errata sheet, vol. 2.
[13] Henderson, Y., and Haggard, H. W.: Noxious gases. Am. Chemical Soc. Monograph No. 35 (1927). Chemical Catalog Co., New York.
[14] Flury, F., and Zernik, F.: Schädliche Gase. Berlin, 1931. Verlag von Julius Springer.

TABLE 4.—*Acute effects of exposure of guinea pigs to butanone vapor in air*

Acute effects after various periods of exposure	Concentration, percent by volume in air
Kills in a few minutes	([1])
Dangerous to life in 30 to 60 minutes	5.0–10.0
Maximum amount for 60 minutes without serious disturbance	1.0
Maximum amount for several hours without serious disturbance	0.3

[1] Not produced by 10 percent vapor in air, the highest concentration obtained in a closed chamber by extended recirculation of air (30° C, 740 mm pressure) over wicks wet with butanone.

CAUSE OF DEATH DURING EXPOSURE

It is not clear whether death was due to irritation of the lungs or to a state of narcosis that terminated in death. It is noteworthy that without exception the animals either died during exposure or recovered. This indicates that the irritation of the respiratory center was secondary to the narcotic action. In some instances the animals were unconscious for several hours after exposure terminated (30 minutes' exposure to 10 percent, 90 minutes to 3.3 percent, and 810 minutes to 1 percent), and in one instance (30 minutes to 10 percent) did not regain consciousness until 8 to 10 hours after exposure, but were approaching normal activity 24 hours after exposure and appeared normal in activity within 48 hours. Opacity of the cornea persisted in some cases for the 8-day period before the pigs were killed for autopsy.

WARNING PROPERTIES AND HAZARDS OF ACUTE POISONING

Men momentarily exposed to 3.3 and approximately 10 percent vapor in air pronounced the atmosphere intolerabl because of irritation to the eyes and nasal passages. One percent vapor in air was found to have a strong odor and to be almost intolerable from irritation to the eyes and nose after several inhalations; 0.33 percent vapor had a moderate to strong odor and was moderately irritating to the eyes and nose.

Concentrations apparently harmless to guinea pigs after several hours' exposure have distinct warning properties of both odor and irritation, and concentrations which produced no serious effects in 1 hour were practically intolerable.

WARNING PROPERTIES AND EXPLOSION HAZARDS

The explosion hazard of butanone vapor is not to be ignored. The intensity of odor and irritating properties are high enough, however, to give distinct warning characteristics to vapor-air mixtures considerably below the flammable range, which may be considered to be about 2 percent. The upper limit probably is not greater than 12 percent.

SUMMARY AND CONCLUSIONS

The acute physiological response of guinea pigs to air containing butanone (methyl ethyl ketone) vapor was determined. The concentrations of the vapor ranged from those that produced death to those that produced no effect after several hours' exposure. The signs of response, fatality, and gross pathology are given. The warning properties as studied by the exposure of persons are described.

The symptoms are principally those of eye and nose irritation, and narcosis, the latter being apparently the most significant. Animals that did not die during exposure recovered.

The principal gross pathological findings immediately after exposure were congestion, edema, and hemorrhage of vital organs, death being due to a narcosis terminating in death.

At room temperature it was impossible to attain a concentration that would kill guinea pigs in a few minutes. Exposure to 5- to 10-percent vapor is considered dangerous to the life of guinea pigs after 30 to 60 minutes. One percent is considered the maximum amount for 60 minutes without serious disturbance and 0.3 percent the maximum amount for several hours without serious disturbances.

Butanone has a distinct odor and is markedly irritating to the nose and eyes of man in concentrations found to be harmful to guinea pigs. It also has moderate warning properties (odor and eye and nose irritation) in concentrations apparently harmless to guinea pigs after several hours' exposure. Flammable mixtures of the vapor in air are practically intolerable to man because of odor, and eye and nose irritation.

ACKNOWLEDGMENTS

Acknowledgment, with thanks, is made to Senior Surgeon R. R. Sayers, United States Public Health Service, formerly chief, Health and Safety Branch, United States Bureau of Mines, for consultation and advice in this investigation, and to John Chornyak, formerly medical officer in charge, pathological laboratory, and Acting Assistant Surgeon S. H. Black, United States Public Health Service, formerly assistant surgeon, United States Bureau of Mines, for making the pathological examinations.

DEATHS DURING WEEK ENDED AUG. 17, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 17, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	6,956	7,082
Deaths per 1,000 population, annual basis	9.7	9.9
Deaths under 1 year of age	510	560
Deaths under 1 year of age per 1,000 estimated live births	47	52
Deaths per 1,000 population, annual basis, first 33 weeks of year	11.7	11.7
Data from industrial insurance companies:		
Policies in force	67,585,751	67,567,192
Number of death claims	11,014	11,690
Death claims per 1,000 policies in force, annual rate	8.5	9.0
Death claims per 1,000 policies, first 33 weeks of year, annual rate	10.1	10.8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Aug. 24, 1935, and Aug. 25, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 24, 1935, and Aug. 25, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934
New England States:								
Maine	1	5			38	1	0	0
New Hampshire		1					0	0
Vermont					12	19	0	0
Massachusetts	6	12			21	18	0	1
Rhode Island	2				2	1	0	0
Connecticut	2	1		2	16	7	1	1
Middle Atlantic States:								
New York	10	20	[1] 1	[1] 8	146	62	5	4
New Jersey	1	14	3	10	32	22	2	1
Pennsylvania [2]	20	20			39	156	0	6
East North Central States:								
Ohio	11	13	1	2	17	5	1	0
Indiana	11	15	47	11	2	5	4	0
Illinois	15	24	3	20	32	61	7	5
Michigan	8	3			31	9	0	0
Wisconsin	2	4	20	9	56	55	1	2
West North Central States:								
Minnesota	1	8	1		2	6	0	0
Iowa	5	1	2		3	9	2	2
Missouri	18	15	28	3	6	14	3	0
North Dakota	2	6	18		8	3	0	0
South Dakota	3	1				8	1	0
Nebraska	11	2			1	3	0	3
Kansas [2]	3	13	1		4	4	1	3
South Atlantic States:								
Delaware					4		0	0
Maryland [3] [4]	6	4		146	1	3	4	0
District of Columbia	9	3	1		1		6	1
Virginia [4]	28	22			12	17	3	0
West Virginia	20	14	10	17	10	29	1	1
North Carolina [5]	21	41		1		31	1	1
South Carolina [2]	9	4	45	81	1	4	0	0
Georgia [5]	18	11					0	1
Florida	3	7	1		4	3	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 24, 1935, and Aug. 25, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934
East South Central States:								
Kentucky	22	31			31	74	0	1
Tennessee	11	10	12	13	6	24	5	2
Alabama [5]	33	33	5	6		75	1	1
Mississippi [3]	19	14					0	0
West South Central States:								
Arkansas	11	8	5	1			0	1
Louisiana	12	12	19	5	11	10	1	0
Oklahoma [2, 6]	9	3	5	1	4	2	1	0
Texas [5]	39	43	12	11		6	0	0
Mountain States:								
Montana [4]		1		5	4	8	0	0
Idaho			1		2		0	0
Wyoming [4]					18	1	0	0
Colorado	9	4			6	4	0	0
New Mexico	2	1		3		5	1	1
Arizona	3	1	4	4	2	2	0	0
Utah [3]	1	1			1	4	0	0
Pacific States:								
Washington					17	6	0	0
Oregon		1	3	17	43	4	0	1
California	23	13	10	5	87	35	4	0
Total	449	460	258	381	733	815	56	39
First 34 weeks of year	18,569	20,906	104,369	49,568	696,212	669,077	4,221	1,630

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934
New England States:								
Maine	8	0	1	3	0	0	6	7
New Hampshire	4	0		1	0	0	0	1
Vermont	4	1	1	1	0	0	0	0
Massachusetts	112	4	49	46	0	0	3	3
Rhode Island	39	0	2	6	0	0	1	1
Connecticut	40	1	6	3	0	0	2	1
Middle Atlantic States:								
New York	291	12	67	101	0	0	37	30
New Jersey	26	2	23	20	0	0	10	7
Pennsylvania [2]	11	8	88	91	0	0	24	26
East North Central States:								
Ohio	2	10	51	67	0	0	27	45
Indiana	2	1	22	22	0	1	11	38
Illinois	9	14	83	74	0	0	51	41
Michigan	87	9	23	49	0	1	14	16
Wisconsin	10	3	42	27	0	7	2	4
West North Central States:								
Minnesota	3	1	26	9	0	0	21	13
Iowa	1	2	16	9	0	1	4	7
Missouri	1	1	21	17	0	0	23	52
North Dakota	2	1	9	5	0	0	1	2
South Dakota	1	1	3	3	0	0	3	1
Nebraska	1	2	1	11	2	0	0	10
Kansas [2]	0	2	11	13	0	0	16	11
South Atlantic States:								
Delaware	0	2	1	1	0	0	4	0
Maryland [3, 4]	6	0	18	18	0	0	23	20
District of Columbia	7	1	5	7	0	0	4	0
Virginia [4]	39	2	16	30	0	0	41	34
West Virginia	4	6	26	19	0	0	28	25
North Carolina [5]	11	0	15	23	1	0	22	20
South Carolina [2]	3	0	2	4	0	0	20	19
Georgia [5]	0	1	5	7	0	0	30	52
Florida	1	0	2	2	0	0	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 24, 1935, and Aug. 25, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934	Week ended Aug. 24, 1935	Week ended Aug. 25, 1934
East South Central States:								
Kentucky	36	9	20	9	0	0	81	72
Tennessee	6	8	15	28	0	0	47	71
Alabama [5]	1	5	3	14	0	0	22	52
Mississippi [3]	1	1	8	5	0	0	4	18
West South Central States:								
Arkansas	1	0	8	1	3	0	0	5
Louisiana	6	1	2	6	0	0	22	36
Oklahoma [2] [6]	0	1	4	9	0	0	35	23
Texas [5]	4	5	31	20	16	0	58	41
Mountain States:								
Montana [4]	0	48	3	3	0	0	3	14
Idaho	0	8	6	------	0	0	1	2
Wyoming [4]	0	1	2	5	1	0	0	0
Colorado	0	1	15	7	0	0	3	9
New Mexico	0	0	14	1	0	0	11	7
Arizona	0	7	3	8	0	0	3	5
Utah [3]	1	1	16	2	0	0	0	1
Pacific States:								
Washington	2	42	8	10	4	9	12	3
Oregon	0	1	17	10	1	0	8	5
California	24	63	67	58	2	0	11	16
Total	807	289	877	885	30	19	750	869
First 34 weeks of year	4,329	4,354	181,256	149,045	5,341	3,770	10,000	12,071

[1] New York City only.
[2] Epidemic encephalitis, week ended Aug. 24, 1935, 44 cases, as follows: Pennsylvania, 39; Kansas, 3; South Carolina, 1; Oklahoma, 1.
[3] Week ended earlier than Saturday.
[4] Rocky Mountain spotted fever, week ended Aug. 24, 1935, 10 cases, as follows: Maryland, 4; Virginia, 4; Montana, 1. Wyoming, 1.
[5] Typhus fever, week ended Aug. 24, 1935, 41 cases, as follows: North Carolina, 2; Georgia, 10; Alabama, 19; Texas, 10.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July 1935										
Florida	1	20	1	130	15	1	3	12	0	36
Georgia	1	44	16	565	10	37	4	8	0	166
Idaho	1	------	6	------	9	------	0	14	4	------
Illinois	43	122	46	81	1,291	2	16	824	1	79
Kansas	8	21	16	19	161	------	4	89	17	71
Louisiana	2	72	69	687	52	18	16	17	0	101
Massachusetts	------	30	------	1	595	3	46	281	0	13
Oklahoma [1]	3	14	63	277	19	32	1	40	------	130
Oregon	2	2	22	2	192	------	1	74	11	7
Rhode Island	2	11	------	------	493	------	15	20	0	2
South Dakota	------	13	------	2	33	------	------	20	28	6
Texas	7	67	72	3,976	78	57	3	52	7	132
Virginia	14	37	130	35	211	31	246	51	1	88
Washington	4	5	14	------	373	------	1	77	70	7
West Virginia	7	40	87	------	77	------	------	58	0	90
Wisconsin	9	12	102	8	2,686	------	5	454	37	7

[1] Exclusive of Oklahoma City and Tulsa.

July 1935

	Cases
Actinomycosis:	
Massachusetts	1
Anthrax:	
Louisiana	2
Chicken pox:	
Florida	7
Georgia	20
Idaho	3
Illinois	407
Kansas	31
Louisiana	4
Massachusetts	379
Oklahoma [1]	9
Oregon	62
Rhode Island	30
South Dakota	15
Texas	58
Virginia	55
Washington	158
West Virginia	8
Wisconsin	584
Dengue:	
Florida	3
Georgia	7
Illinois	1
Texas	3
Dysentery:	
Florida (amoebic)	1
Georgia (amoebic)	1
Georgia (bacillary)	23
Illinois (amoebic)	10
Illinois (bacillary)	8
Kansas (amoebic)	1
Kansas (bacillary)	1
Louisiana (amoebic)	9
Massachusetts (amoebic)	1
Massachusetts (bacillary)	1
Oklahoma [1]	97
Oregon (amoebic)	1
Texas (bacillary)	66
Virginia (amoebic)	1
Virginia (bacillary and diarrhea)	1,231
Washington (amoebic)	1
Wisconsin (amoebic)	2
Epidemic encephalitis:	
Illinois	7
Kansas	3
Louisiana	1
Massachusetts	9
Oregon	4
Texas	2
Washington	1
German measles:	
Illinois	228
Kansas	9
Massachusetts	687
Rhode Island	11
Washington	78
Wisconsin	702
Hookworm disease:	
Georgia	179
Louisiana	21

July 1935—Continued

	Cases
Impetigo contagiosa:	
Illinois	1
Kansas	1
Oklahoma [1]	6
Oregon	5
Washington	3
Lead poisoning:	
Illinois	16
Massachusetts	1
Leprosy:	
Louisiana	3
Mumps:	
Florida	57
Georgia	68
Idaho	1
Illinois	247
Kansas	129
Louisiana	2
Massachusetts	241
Oklahoma [1]	16
Oregon	112
Rhode Island	34
South Dakota	29
Texas	145
Virginia	133
Washington	125
Wisconsin	910
Ophthalmia neonatorum:	
Illinois	4
Virginia	1
Paratyphoid fever:	
Georgia	1
Illinois	9
Kansas	19
Louisiana	2
Oregon	3
Rhode Island	2
Texas	2
Virginia	17
Puerperal septicemia:	
Illinois	1
Rabies in animals:	
Illinois	25
Louisiana	19
Massachusetts	17
Washington	5
Rabies in man:	
Georgia	1
Kansas	1
Louisiana	1
Rocky Mountain spotted fever:	
Idaho	1
Oregon	5
South Dakota	2
Virginia	11
Washington	1
West Virginia	1
Scabies:	
Oregon	7
Septic sore throat:	
Georgia	12
Illinois	3
Kansas	12
Louisiana	3
Massachusetts	15
Oklahoma [1]	24
Oregon	2

July 1935—Continued

	Cases
Septic sore throat—Con.	
Virginia	4
Washington	1
Wisconsin	7
Tetanus:	
Georgia	1
Illinois	4
Kansas	7
Louisiana	4
Massachusetts	4
Virginia	5
Trachoma:	
Georgia	4
Illinois	92
Massachusetts	7
Oklahoma [1]	8
Rhode Island	2
Wisconsin	1
Trichinosis:	
Illinois	4
Massachusetts	1
South Dakota	1
Tularaemia:	
Georgia	8
Louisiana	1
Texas	1
Virginia	4
Washington	1
Typhus fever:	
Florida	5
Georgia	58
Illinois	1
Louisiana	8
Texas	23
Virginia	2
Undulant fever:	
Georgia	7
Illinois	84
Kansas	15
Louisiana	6
Massachusetts	8
Texas	5
Virginia	8
Washington	3
Wisconsin	7
Vincent's infection:	
Illinois	14
Kansas	5
Oregon	7
Washington	1
Whooping cough:	
Florida	47
Georgia	100
Idaho	3
Illinois	1,216
Kansas	278
Louisiana	17
Massachusetts	347
Oklahoma [1]	101
Oregon	55
Rhode Island	79
South Dakota	20
Texas	208
Virginia	372
Washington	76
West Virginia	192
Wisconsin	1,243

[1] Exclusive of Oklahoma City and Tulsa.

WEEKLY REPORTS FROM CITIES

City reports for week ended Aug. 17, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	1	0	1	0	0	0	3	14
New Hampshire:											
Concord	0	------	0	0	0	0	0	0	0	0	7
Nashua	0	------	------	0	------	0	0	------	0	0	------
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	------
Burlington	0	------	0	0	0	0	0	0	0	0	12
Rutland	1	------	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	0	------	0	9	9	18	0	6	4	21	193
Fall River	0	------	0	0	0	1	0	2	0	1	29
Springfield	0	------	0	0	1	1	0	1	1	3	20
Worcester	0	------	0	0	2	3	0	1	0	3	39
Rhode Island:											
Pawtucket	0	------	------	0	------	0	0	------	0	0	------
Providence	2	2	1	8	3	4	0	2	1	3	46
Connecticut:											
Bridgeport	0	------	0	1	1	2	0	1	0	0	28
Hartford	2	------	------	0	------	0	0	------	0	18	38
New Haven	0	------	1	0	4	0	0	0	0	0	33
New York:											
Buffalo	2	------	0	2	9	10	0	4	0	25	103
New York	8	2	0	78	59	23	0	95	18	116	1,213
Rochester	0	------	0	1	1	4	0	1	1	7	49
Syracuse	0	------	0	16	1	2	0	1	0	29	44
New Jersey:											
Camden	0	------	0	0	1	------	0	0	1	10	26
Newark	0	1	0	2	1	3	0	9	0	29	80
Trenton	0	------	0	0	0	1	0	2	0	0	29
Pennsylvania:											
Philadelphia	4	2	------	8	14	16	0	19	5	75	343
Pittsburgh	1	------	0	1	5	5	0	8	1	21	108
Reading	0	------	0	1	0	0	0	0	0	2	30
Scranton	0	------	------	0	------	2	0	------	0	3	------
Ohio:											
Cincinnati	1	1	1	0	3	4	0	6	2	4	------
Cleveland	4	8	------	11	7	3	0	11	5	59	175
Columbus	0	------	0	0	3	1	0	2	1	4	63
Toledo	0	------	0	6	2	3	0	0	2	17	57
Indiana:											
Anderson	0	------	0	0	2	0	0	1	0	4	15
Fort Wayne	0	------	0	0	1	1	0	1	0	0	27
Indianapolis	1	------	0	3	7	2	0	6	1	17	93
South Bend	0	------	0	0	0	1	0	0	0	0	10
Terre Haute	0	------	0	0	0	0	0	0	1	0	15
Illinois:											
Alton	0	------	0	0	0	0	0	0	0	0	5
Chicago	3	6	2	24	29	45	0	33	2	147	612
Elgin	1	------	0	0	1	0	0	0	0	5	5
Moline	0	------	0	0	0	0	0	0	0	0	7
Springfield	0	------	0	0	1	0	0	0	0	6	20
Michigan:											
Detroit	1	------	0	11	9	6	0	16	4	155	237
Flint	0	------	0	0	0	4	0	0	1	11	17
Grand Rapids	0	------	0	0	1	3	0	0	1	12	22
Wisconsin:											
Kenosha	0	------	------	0	------	1	0	------	0	2	4
Milwaukee	0	------	0	25	2	6	0	1	0	34	76
Racine	0	------	0	1	0	5	0	0	0	9	10
Superior	0	------	0	1	1	0	0	0	0	1	5
Minnesota:											
Duluth	0	------	0	0	1	0	0	0	0	1	17
Minneapolis	1	------	0	4	0	13	0	------	10	1	103
St. Paul	0	------	0	0	2	2	0	2	3	11	50
Iowa:											
Cedar Rapids	0	------	------	0	------	1	0	------	0	3	------
Davenport	1	------	------	0	------	0	0	------	0	0	------
Des Moines	0	------	------	0	------	0	0	------	0	0	26
Sioux City	0	------	------	0	0	1	0	------	0	1	------
Waterloo	1	------	------	0	------	0	0	------	0	0	------

City reports for week ended Aug. 17, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Missouri:											
Kansas City	0	------	0	3	2	1	0	4	0	0	68
St. Joseph	1	------	0	0	0	0	0	1	0	2	14
St. Louis	4	------	0	1	3	2	0	6	1	6	140
North Dakota:											
Fargo	0	------	0	0	0	1	0	0	0	1	7
Grand Forks	0	------	------	0	------	0	0	------	0	2	------
Minot	0	------	------	0	------	0	0	------	0	0	7
Nebraska:											
Omaha	1	------	0	0	0	0	0	1	0	0	51
Kansas:											
Topeka	2	------	0	0	1	0	0	0	0	8	6
Wichita	0	------	0	0	1	0	0	------	0	1	29
Delaware:											
Wilmington	0	------	1	0	2	0	0	0	0	0	21
Maryland:											
Baltimore	4	------	1	0	6	3	0	7	1	19	166
Cumberland	0	------	0	0	0	0	0	0	0	0	8
Frederick	0	------	0	0	1	0	0	0	1	0	3
District of Columbia:											
Washington	9	------	0	7	5	3	0	17	3	1	146
Virginia:											
Lynchburg	0	------	0	0	1	0	0	1	6	13	12
Norfolk	0	------	0	0	1	1	0	1	3	0	28
Richmond	0	------	1	0	4	1	0	3	0	0	59
Roanoke	0	------	0	0	1	1	0	0	2	0	17
West Virginia:											
Charleston	2	------	------	0	------	0	0	------	0	0	12
Huntington	2	------	------	0	------	2	0	------	1	3	------
Wheeling	0	------	0	1	0	0	0	3	1	2	16
North Carolina:											
Gastonia	0	------	------	0	------	0	0	------	0	0	3
Raleigh	1	------	0	0	2	1	0	0	1	2	9
Wilmington	0	------	0	0	1	0	0	1	0	0	10
Winston-Salem	0	------	0	0	1	0	0	1	1	2	17
South Carolina:											
Charleston	1	4	------	0	0	0	0	2	1	0	21
Columbia	0	------	0	0	5	0	0	2	0	0	43
Greenville	0	------	0	0	1	0	0	0	0	0	3
Georgia:											
Atlanta	1	------	0	0	4	2	0	3	0	3	71
Brunswick	0	------	0	0	0	0	0	1	0	0	6
Savannah	2	------	0	0	0	1	0	2	11	1	31
Florida:											
Miami	3	1	0	0	0	1	0	1	2	0	23
Tampa	0	1	1	1	2	0	0	1	0	3	24
Kentucky:											
Ashland	0	------	------	0	------	0	0	------	1	0	------
Covington	2	------	0	0	0	1	0	2	0	1	16
Lexington	1	------	0	0	1	2	0	2	1	0	17
Louisville	1	------	0	3	2	1	0	6	4	22	62
Tennessee:											
Knoxville	0	------	0	0	0	0	0	4	2	2	19
Memphis	1	------	0	0	4	1	0	4	0	0	94
Nashville	0	------	0	0	2	2	0	2	2	0	55
Alabama:											
Birmingham	1	------	0	0	3	2	0	3	0	0	59
Mobile	0	------	------	0	------	1	0	------	0	0	20
Montgomery	0	------	------	0	------	1	0	------	1	0	------
Arkansas:											
Fort Smith	------	------	------	------	------	------	------	------	------	------	------
Little Rock	0	------	0	1	4	1	0	------	0	0	------
Louisiana:											
Lake Charles	0	------	0	0	1	0	0	0	1	0	14
New Orleans	6	------	0	2	5	2	0	6	6	3	140
Shreveport	1	------	0	0	2	0	0	1	0	0	37
Texas:											
Dallas	11	------	0	0	2	6	1	0	0	3	51
Fort Worth	2	------	0	0	1	2	0	2	0	1	39
Galveston	0	------	0	0	2	1	0	2	1	0	20
Houston	6	------	0	0	4	1	0	3	1	0	65
San Antonio	1	------	0	0	4	1	0	5	0	0	55
Montana:											
Billings	0	------	0	0	1	0	0	0	1	1	4
Great Falls	0	------	0	0	1	0	0	0	0	0	4
Helena	0	------	0	0	0	0	0	0	0	0	4
Missoula	0	------	0	0	0	0	0	0	0	0	3

City reports for week ended Aug. 17, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Idaho:											
Boise	0		0	0	0	0	0	0	0	0	7
Colorado:											
Colorado Springs	0		0	0	0	0	0	1	0	0	10
Denver	5		0	3	2	4	0	2	0	2	70
Pueblo	0		0	0	0	2	0	0	0	0	5
New Mexico:											
Albuquerque	1		0	0	1	0	0	3	0	0	17
Utah:											
Salt Lake City	0		0	1	2	6	0	1	0	17	31
Nevada:											
Reno	0		0	0	0	0	0	1	0	0	4
Washington:											
Seattle	0			6		1	0		0	4	
Spokane	0		0	1	2	0	1	0	0	3	25
Tacoma	0		0	0	2	0	1	0	0	0	28
Oregon:											
Portland	0		0	1	1	4	0	0	0	0	50
Salem	0			0		2	0		0	0	
California:											
Los Angeles	2	7	0	23	17	15	0	15	0	18	268
Sacramento	1		0	2	3	10	0	1	1	2	29
San Francisco	0		0	30	2	4	0	8	1	19	138

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	0	0	77
Fall River	0	0	15
Springfield	0	0	1
Worcester	0	0	3
Rhode Island:			
Pawtucket	0	0	1
Providence	0	0	7
Connecticut:			
Bridgeport	0	0	9
Hartford	0	0	1
New Haven	0	0	3
New York:			
New York	13	5	209
New Jersey:			
Camden	0	0	1
Pennsylvania:			
Philadelphia	0	0	5
Pittsburgh	1	1	1
Ohio:			
Cincinnati	0	0	1
Cleveland	1	1	3
Indiana:			
Fort Wayne	1	0	0
Terre Haute	1	0	0
Illinois:			
Chicago	3	0	1
Moline	0	1	0
Springfield	0	0	1
Michigan:			
Detroit	0	0	26
Flint	0	0	9
Grand Rapids	0	0	7
Wisconsin:			
Kenosha	0	0	1
Racine	0	0	1
Superior	1	0	0
Iowa:			
Des Moines	1		1
Sioux City	1		0

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Missouri:			
St. Joseph	0	1	1
St. Louis	1	1	1
North Dakota:			
Fargo	0	0	1
Nebraska:			
Omaha	0	1	0
Kansas:			
Topeka	1	0	0
Wichita	1	0	0
Maryland:			
Baltimore	2	0	0
District of Columbia:			
Washington	8	0	4
Virginia:			
Lynchburg	0	0	1
Norfolk	0	0	1
Richmond	0	0	1
Roanoke	0	0	4
Georgia:			
Atlanta	2	0	0
Kentucky:			
Louisville	0	0	20
Tennessee:			
Memphis	3	0	0
Alabama:			
Montgomery	0		1
Louisiana:			
New Orleans	0	0	1
Colorado:			
Denver	1	1	0
Utah:			
Salt Lake City	0	0	1
Washington:			
Seattle	0	0	1
California:			
Los Angeles	0	1	9
Sacramento	0	0	1
San Francisco	0	0	1

Epidemic encephalitis.—Cases: Bridgeport, 1; New York, 1; Detroit, 1; St. Louis, 2; Wichita, 1; Baltimore, 1.

Pellagra.—Cases: Philadelphia, 1; Wilmington, N. C., 1; Winston-Salem, 1; Savannah, 2; Birmingham, 1; Dallas, 1; San Francisco, 1.

Typhus fever.—Cases: Chicago, 1; Charleston, S. C., 1; Savannah, 1; Montgomery, 4; New Orleans, 2; Shreveport, 1; Dallas, 3.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended August 10, 1935.—During the 2 weeks ended August 10, 1935, certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chicken pox		1		36	132	29	28	4	15	245
Diphtheria		4	6	19	11	9	5			54
Dysentery				2						2
Erysipelas				4	4	2			1	11
Influenza					1				1	2
Lethargic encephalitis				1					1	2
Measles		5	24	99	411	100	40	8	49	736
Mumps					81	34	36	6	13	170
Paratyphoid fever		1			5					6
Pneumonia	1	1			10		1		10	23
Poliomyelitis				1	4	1		3		9
Scarlet fever		9	3	81	80	10	5	2	26	216
Trachoma						1			4	5
Tuberculosis	15	17	30	122	147	5	26	4	31	397
Typhoid fever			6	49	4	3	8	3	4	77
Undulant fever					8				1	9
Whooping cough		5		181	261	36	109	23	18	633

CZECHOSLOVAKIA

Communicable diseases—June 1935. During the month of June 1935, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	2	1	Paratyphoid fever	6	1
Cerebrospinal meningitis	16	6	Poliomyelitis	4	1
Chicken pox	186		Puerperal fever	35	16
Diphtheria	1,485	107	Scarlet fever	1,698	28
Dysentery	18	2	Trachoma	81	
Influenza	73	11	Typhoid fever	293	27
Lethargic encephalitis	3	3	Typhus fever	11	
Malaria	519				

DENMARK

Communicable diseases—April–June 1935.—During the months of April, May, and June 1935, cases of certain communicable diseases were reported in Denmark as follows:

Disease	April	May	June	Disease	April	May	June
Cerebrospinal meningitis	9	5	7	Paratyphoid fever	8	14	21
Chicken pox	36	36	36	Poliomyelitis	11	22	14
Diphtheria and croup	335	333	285	Puerperal fever	13	14	11
Epidemic encephalitis	5	3	3	Scabies	466	427	376
Erysipelas	210	252	222	Scarlet fever	553	535	385
German measles	86	128	138	Syphilis	77	59	63
Gonorrhea	643	741	684	Tetanus, neonatorum	1	2	3
Influenza	23, 459	10, 923	3, 604	Tetanus, traumatic	1		1
Malaria	4	4	8	Typhoid fever	1	1	5
Measles	13, 808	15, 183	9, 643	Undulant fever (Bact. abort. Bang)	48	59	46
Mumps	762	753	421	Whooping cough	2, 386	2, 698	1, 870
Paradysentery	35	25	17				

YUGOSLAVIA

Communicable diseases—July 1935.—During the month of July 1935, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	98	5	Paratyphoid fever	39	1
Cerebrospinal meningitis	5	3	Poliomyelitis	7	1
Diphtheria	371	24	Scarlet fever	181	3
Dysentery	216	22	Sepsis	6	5
Erysipelas	159	11	Tetanus	55	25
Influenza	3		Typhoid fever	288	32
Measles	185	2	Typhus fever	49	3

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Aug. 30, 1935, pp. 1194–1210. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Sept. 27, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

Indo-China—Pnom-Penh.—During the week ended August 17, 1935, 1 case of cholera was reported at Pnom-Penh, Indo-China.

Plague

China—Sinkiang Province.—During the week ended August 17, 1935, plague was reported at Kashgar and Oulouktchat, Sinkiang Province, China, about 25 miles from the Chinese and Russian Turkistan frontier.

Ecuador—Loja Province—Celica.—On July 20, 1935, 1 fatal case of pneumonic plague was reported at Celica, Loja Province, Ecuador.

Peru.—During the month of July 1935, 4 cases of plague with 3 deaths were reported in Peru, including 1 case of plague reported at the city of Lima, Peru.

Acute Spirochetal Jaundice

Mexico—Tampico.—According to a report dated August 24, 1935, 2 cases of acute spirochetal jaundice, with 1 death, had been reported in Tampico, Mexico, within the preceding 6 weeks. Sections of the liver, spleen, and kidney from the fatal case were sent to Mexico City for pathological diagnosis and were found negative for yellow fever.

UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 39; title 44, section 220

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

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PUBLIC HEALTH REPORTS

VOL. 50 SEPTEMBER 13, 1935 No. 37

THE ACCURACY OF CERTIFIED CAUSES OF DEATH

Its Relation to Mortality Statistics and the International List [1]

Report of the Committee on the Accuracy of Certified Causes of Death and its Relation to Mortality Statistics and to the International List, American Public Health Association. Committee: Haven Emerson, *Chairman;* George Baehr; W. J. V. Deacon; William H. Guilfoy;[2] T. F. Murphy; Charles Norris;[2] John O. Spain; W. R. Tracey; Jessamine S Whitney; R. C. Williams; W. R. Williams; George H. Van Buren, *Secretary.*

[This report comprises the recommendations of the Committee to the section on vital statistics of the American Public Health Association at its meeting in Milwaukee, Wis., Oct 7, 1935, and is subject to amendment by the section]

The present report is the fourth which the Committee has made. The first report was submitted to the section on vital statistics of the American Public Health Association at the Cincinnati meeting in October 1916 and was published by the United States Public Health Service in the PUBLIC HEALTH REPORTS for September 22, 1916 (Reprint No. 363). The second report was made to the same section at the Washington meeting in 1917, and was published by the Public Health Service in the PUBLIC HEALTH REPORTS for September 28, 1917 (Reprint No. 440). The third report was made to the section at various meetings and was published in the PUBLIC HEALTH REPORTS for October 2, 1925 (Reprint No. 1044).

The conclusions of the Committee in the first and second reports related to the second revision of the International List of Causes of Death. The third report related to the third revision. The present report relates to the *fourth* revision.

In the present report the Committee presents its recommendations as to the following: (*a*) What titles of the present (fourth) revision should remain in the list; (*b*) what terms should be listed under each title; and (*c*) what terms should be transferred from one title to another.

[1] As this report is to be considered by the Committee at the meeting of the American Public Health Association in Milwaukee in October, and as some final revision will probably be found necessary, it is printed here as "proof" for discussion.—Ed.

[2] Deceased.

In the conclusions which follow and which relate to each title of the International List, it is understood that the terms which are "approved" are recommended for use in the United States and Canada. It is not intended to imply that there are no other terms which adequately describe the various causes; but for the sake of uniformity and clearness it is believed that it would be well for physicians, so far as possible, to limit themselves, in making out death certificates, to the use of the terms marked "approved."

The Committee has proposed a slight change in the order of the titles relating to cancer, and has also recommended the addition of one new title, *Cancer and Other Malignant Tumors of the Urinary Organs* (number 52) This increases the number of proposed titles from 200 to 201. Beginning, therefore, with Cancer of the Skin (now number 53), all title numbers in this report are in excess by one, as compared with the numbers in the fourth revision of the International List.

The conclusions here presented, or as many of them as are approved by the American Public Health Association, will be submitted to the International Commission charged with the fifth decennial revision of the International List, which will meet either in 1938 or 1939.

I. INFECTIOUS AND PARASITIC DISEASES

1. Typhoid fever

The approved terms are:

Enteric fever
Typhoid fever
Typhus abdominalis

2. Paratyphoid fever

The approved term is

Paratyphoid fever

3. Typhus fever

The approved terms are:

Exanthematic typhus
Mexican fever
typhus (tabardillo)
Tabardillo (Mexican typhus)
Typhus fever

4. Relapsing fever

The approved terms are:

Recurrent fever
Relapsing fever
Relapsing (spirillum) fever

5. Undulant fever (brucellosis)

The approved terms are.

Brucellosis
Febris melitensis
Malta fever
Mediterranean fever
Undulant fever

The Committee voted to add, in parentheses, the word Brucellosis to the title heading and to add this term to the list of approved inclusions.

6. Smallpox (variola)

The approved terms are:

Hemorrhagic smallpox
Malignant smallpox
Smallpox
Variola

7. Measles

The approved terms are:

Hemorrhagic measles
Measles

8. Scarlet fever

The approved terms are:

Nephritis following scarlet fever
Scarlatina
 anginosa
 maligna
Scarlet fever
Any disease or condition qualified by the word scarlatinal

9. Whooping cough

The approved terms are:

Pertussis
Whooping cough

10. Diphtheria

The approved terms are:

Diphtheria (of any specified site)
 of wound
Gangrenous diphtheria
Post-diphtheritic nephritis
Post-diphtheritic neuritis
Any disease or condition qualified by the word diphtheritic

11. Influenza

(*a*) With respiratory complications specified

The approved terms are:

Bronchial influenza
Bronchopneumonia due to grippe
Influenza followed by pneumonia
Influenzal pneumonia
Pneumonia due to grippe

(*b*) Without respiratory complications specified

The approved terms are:

Grippe
Influenza
La grippe

12. Cholera

The approved terms are:

Asiatic cholera
Cholera (where Asiatic cholera is prevalent)
Epidemic cholera (where Asiatic cholera is prevalent)

13. Dysentery

The approved subtitles and terms are:

(*a*) Amebic

Amebiasis
Amebic abscess of liver
 dysentery
 enteritis
Entamebic dysentery
Tropical abscess of liver

(*b*) Bacillary

Bacillary dysentery

(*c*) Unspecified or due to other causes

Balantidic dysentery
Dysentery
Hemorrhagic dysentery

This title does not include: Malarial dysentery (38)

14. Plague

The approved subtitles and terms are:

(*a*) **Bubonic**
Bubonic plague
(*b*) **Pneumonic**
Plague (pulmonary form)
Pneumonic plague
(*c*) **Septicemic**
Plague (septicemic form)
(*d*) **Unspecified**
Pest
Plague

15. Erysipelas

The approved terms are:

Erysipelas neonatorum
Surgical erysipelas
Erysipelas (of any specified site)

16. Acute poliomyelitis and acute polioencephalitis

The approved terms are:

Acute anterior poliomyelitis
 ascending anterior poliomyelitis
 ascending myelitis
 ascending poliomyelitis
 ascending spinal paralysis
 atrophic infantile paralysis
 infantile paralysis
Acute polioencephalitis
 polioencephalomyelitis
 poliomyelitis
Epidemic poliomyelitis
Progressive ascending anterior poliomyelitis

17.

The Committee recommends that the heading of this title be changed to read as follows:

Encephalitis (epidemic, lethargic)

The approved terms are:

Epidemic encephalitis
Lethargic encephalitis
Sleeping sickness (lethargic encephalitis)

18. Meningococcus meningitis

The Committee recommends that the heading of this title be changed from **Epidemic cerebrospinal meningitis** to **Meningococcus meningitis**

The approved terms are:

Cerebrospinal fever
Epidemic cerebrospinal meningitis
Meningococcus cerebrospinal meningitis
 meningitis

19. Glanders

The approved terms are:

Equinia
Farcy
Glanders
Infection by bacillus mallei
Malleus sepsis

20. Anthrax (Bacillus anthracis), malignant pustule

The approved terms are:

Anthrax
Charbon
Infection by bacillus anthracis
Malignant pustule
Woolsorters' disease

21. Rabies

The approved terms are:

Bite of mad dog
Hydrophobia
Lyssa
Rabies

22. Tetanus

The approved terms are:

Lockjaw
Tetanus
Tetanus neonatorum

23. Tuberculosis of the respiratory system

The approved terms are:

Acute bronchopneumonic tuberculosis
Chronic miliary tuberculosis of lung
Miliary tuberculosis of lung
Phthisis
Pneumonic tuberculosis
Pulmonary phthisis
Pulmonary tuberculosis
Tuberculosis (of any specified part of the respiratory tract)
Tuberculous phthisis
pneumonia

24. Tuberculosis of the meninges and central nervous system

The approved terms are:

Solitary tubercle of brain
Tuberculosis of meninges
Tuberculosis of any specified site of the meninges and central nervous system

25. Tuberculosis of the intestines and peritoneum

The approved terms are:

Intestinal tuberculosis
Tabes mesenterica
Tuberculosis of intestine
any specified site of intestinal tract, peritoneum and retroperitoneal lymph nodes)

26. Tuberculosis of the vertebral column

The approved terms are:

Caries of spine
vertebra
Lumbar abscess
Pott's disease
Psoas abscess
Spinal caries
Tuberculosis of spinal column
vertebra
vertebral column
Tuberculous abscess of vertebra
caries of sacrum
lumbar abscess

27. Tuberculosis of the bones and joints (vertebral column excepted)

(*a*) Tuberculosis of the bones

The approved terms are:

Osseous tuberculosis
Osteal tuberculosis
Tuberculosis of bone (except vertebral column)
Tuberculous osteomyelitis

(*b*) Tuberculosis of the joints

The approved terms are:

Articular tuberculosis
Tuberculosis of hip
joint (any joint)
Tuberculous abscess of knee
arthritis
Tuberculous disease of hip
inflammation of knee
swelling of joint
synovitis

28. Tuberculosis of the skin and subcutaneous cellular tissue

The approved terms are:

Lupus
Lupus vulgaris
Scrofulide
Tuberculide
Tuberculosis of skin

29. Tuberculosis of the lymphatic system (bronchial, mesenteric, and retroperitoneal glands excepted)

The approved terms are:

General glandular tuberculosis
Lymphatic tuberculosis
Tuberculosis of axilla
Tuberculosis of any group of lymph nodes specified (mesenteric and retroperitoneal nodes excepted)

30. Tuberculosis of the genito-urinary system

The approved terms are:

Tuberculosis (of any part of the genito-urinary system specified)

31. Tuberculosis of other organs

The approved terms are:

Tuberculosis (of any organ other than as specified in titles 23–30)

32. Disseminated tuberculosis

The approved subtitles and terms are.

(*a*) **Acute**

Acute general miliary tuberculosis
miliary tuberculosis
General miliary tuberculosis
Miliary tuberculosis

(*b*) **Chronic**

Chronic general miliary tuberculosis
Chronic miliary tuberculosis

(*c*) **Unspecified**

Disseminated tuberculosis
General tuberculosis
General tuberculous infection
Generalized tuberculosis

33. Leprosy

The approved terms are:

Anesthetic leprosy
Leprosy
Nodular leprosy
Leprosy (of any specified organ or part of the body)

34. Syphilis

The approved terms are:

Acquired syphilis
Congenital lues
syphilis
Gumma of brain
Hereditary lues
syphilis
Inherited syphilis
Lues
Lues infantum
Secondary syphilis
Syphilis (unqualified, or of any organ or part of the body)
Syphilis neonatorum
Syphilitic (any affection)
Tertiary syphilis

35. Gonococcus infection and other venereal diseases

The Committee recommends that this rubric be subdivided into:
(*a*) **Gonococcus infection and** (*b*) **Other venereal diseases**

The approved terms are:

(*a*) **Gonococcus infection**

Gonococcic arthritis
endocarditis
infection
ophthalmia
peritonitis
Gonococcus infection (of any part)
Gonorrhea
Gonorrheal disease (of any part)
Ophthalmia neonatorum

(*b*) **Other venereal diseases**

Bubo of soft chancre
Climatic bubo
Granuloma inguinale
Granuloma venereum
Lymphogranuloma inguinale (venereum)
Phagedenic abscess
bubo
chancre
ulcer
Soft chancre (site to be specified)
Stricture of rectum (due to lymphogranuloma inguinale)

The Committee recommends the transfer to this title of the term Granuloma inguinale from titles 139 and 140, and of Climatic bubo from title 44.
The Committee recommends the addition to subtitle (*b*) of the terms Lymphogranuloma inguinale (venereum), Granuloma venereum, Stricture of rectum (due to lymphogranuloma inguinale).

36. Purulent infection, septicemia (nonpuerperal)

The approved terms are:

Aerogenes capsulatus infection	Septicemia
Bacteriemia	Staphylococcemia
Gas bacillus infection	Staphylococcus infection
gangrene	Streptococcemia
Purulent infection	Streptococcus infection
Pyemia	

37. Yellow fever

The approved terms are:

Febris flava	Yellow fever

38. Malaria

The approved terms are:

Blackwater fever	Malignant tertian malaria
Estivoautumnal fever	Paludism
Malaria	Quartan malaria
Malarial fever	Tertian malaria
hemoglobinuria	

39. Other diseases due to protozoal parasites

The approved terms are:

Coccidiosis	Kala-azar
Flagellate diarrhea	Spirochetal infection (Vincent's)
Giardiasis	stomatitis (Vincent's)
Icterohemorrhagic jaundice (Weil's disease)	Trypanosomiasis (Africana)
Infestation by *Giardia lamblia*	Americana (Chagas')

The Committee recommends the transfer of the following terms to title no. 44: *Other infectious and parasitic diseases,* subtitle (*c*)

Bronchopulmonary spirochetosis	Spirochetal bronchitis
Frambesia	hemorrhagic jaundice
Rat-bite fever (Sodoku)	jaundice
	Yaws

The Committee recommends the addition of the following terms:

Icterohemorrhagic jaundice (Weil's disease)	Spirochetal infection (Vincent's)
	Spirochetal stomatitis (Vincent's)

40. Ankylostomiasis

The approved terms are:

Ankylostomiasis	Infestation by necator americanus
Hook-worm anemia	uncinaria americana
disease	Necatoriasis
Infestation by ankylostoma ceylanicum	Uncinariasis
duodenale	

41. Hydatid cysts

The approved subtitles and terms are:

(*a*) **Of the liver**

Echinococcosis (site specified)	Hydatid cyst of liver
Echinococcus cyst of liver	

(*b*) **Of other organs (specified site)**

Hydatid (unqualified)
cyst of (specified site)

The Committee recommends the addition of Echinococcosis (site specified).

42. Other diseases caused by helminths

The approved terms are:

Ascariasis
Ascaris pneumonia
Bilharziasis
Chyluria
Clonorchiasis
Cysticercosis (of specified site)
Distomiasis
Elephantiasis (filarial)
Fascioliasis
Filariasis (of specified site)
Fluke disease
Galacturia
Helminthiasis
Hematochyluria
Infestation by ascaris lumbricoides
bothriocephalus latus
cestodes
cysticercus cellulosae
dibothriocephalus latus
diphyllobothrium latum
Infestation by fasciola hepatica
round worm
strongyloides stercoralis
taenia saginata (mediocanellata)
solium
tapeworm
trematodes
trichocephalus
dispar
trichuris trichiura
Lipemia
Lipuria
Paragonimiasis
Piarrhemia
Schistosomiasis
Taeniasis
Trichinosis
Tropical hematuria

43. Mycoses

The approved terms are:

Actinomycosis (of specified site)
Aspergillosis (of specified site)
Blastomycosis (of specified site)
Coccidioidal granuloma
Discomycosis
Erythrasma
Favus
Leptothricosis
Madura disease
foot
Moniliasis
Muguet
Mycetoma
Mycosis fungoides (of specified site)
Mycotic stomatitis
Pneumomycosis
Psilosis
Ringworm
Saccharomyces infection
Sporotrichosis
Sprue (psilosis)
Stomatomycosis
Streptothricosis
Sycosis

The Committee recommends the transfer of Sprue (thrush) and Thrush to title no. 70 (Other general diseases)

44. Other infectious and parasitic diseases

The approved subtitles and terms are:

(*a*) **Chicken-pox**

Chicken-pox
Varicella

(*b*) **German measles**

German measles
Roetheen
Rubella

(c) **Others under this title**

Acrodynia
Breakbone fever
Bronchopulmonary spirochetosis
Cowpox
Dengue
  fever
Epidemic disease (not elsewhere included)
  hiccough
  parotitis
Foot-and-mouth disease
Frambesia
Gangosa
Herpes zoster
Infectious mononucleosis (glandular fever)
Miliary fever (sweating sickness)
Milk-sickness (trembles)
Mumps
Pappataci fever
Parotitis
Phlebotomus fever
Post-infectious encephalitis
Psittacosis
Rhinoscleroma
Rocky Mountain spotted fever
Rat-bite fever (Sodoku)
Sand-fly fever
Septic sore throat
Shingles
Spirochetal bronchitis
  hemorrhagic jaundice
  jaundice
Streptococcic sore throat
Trachoma
Trench fever
Tularemia
Vincent's angina
Vaccinia
Yaws
Zona

The Committee recommends the transfer of the term Climatic bubo to 35 (b) and the transfer to this title, from title 154, of the terms Herpes zoster, Shingles, and Zona. The addition of the terms Infectious mononucleosis (glandular fever) and Post-infectious encephalitis is recommended. Additional recommendations are transfer to this title of Vincent's angina, Septic sore throat, and Streptococcic sore throat from 116 (a), Trachoma from 89, and Bronchopulmonary spirochetosis, Frambesia, Rat-bite fever (Sodoku), Spirochetal bronchitis, Spirochetal hemorrhagic jaundice, Spirochetal jaundice, and Yaws from 39.

II. CANCERS AND OTHER TUMORS

45. Cancer and other malignant tumors of the buccal cavity and pharynx

The approved terms are:

Cancer of buccal cavity (without further qualification)
  cheek
  gum
  jaw
  lip
  maxilla (upper or lower)
Cancer of mouth
  palate
  pharynx
  soft palate
  tongue
  tonsil
Epithelioma of lip

46. Cancer and other malignant tumors of the digestive tract and peritoneum.

The approved terms are:

Cancer of abdominal viscera
  appendix
  bile-duct
  cardiac orifice of stomach
  cecum
  colon
  duodenum
  esophagus
  gall-bladder
    duct
  ileocecal valve
  ileum
  intestinal gland
  intestine
  jejunum
  liver
Cancer of mesenteric gland
  mesentery
  omentum
  pancreas
  peritoneum
  pylorus
  rectovaginal septum
  rectum
  retroperitoneal gland
  retroperitoneal lymph-nodes
  sigmoid flexure
  stomach
  Vater's ampulla
Gastrointestinal cancer
Retroperitoneal cancer

47. Cancer and other malignant tumors of the respiratory system

The approved terms are:

Cancer and other malignant tumors of anterior mediastinum	Cancer of mediastinal gland
bronchi	mediastinum
epiglottis	nasal cavity
glottis	nasopharynx
larynx	pleura
lung	trachea
	Pulmonary cancer

48. Cancer and other malignant tumors of the breast

The approved terms are:

Cancer of breast	Cancer en cuirasse
mammary gland	Paget's disease of nipple
nipple	

49. Cancer and other malignant tumors of the uterus

The approved terms are:

Cancer of cervix	Cancer of womb
placenta	Deciduoma malignum
uterus	Syncytioma

50. Cancer and other malignant tumors of other genital organs of the female

The approved terms are:

Cancer and other malignant tumors of broad ligament	Cancer of uterine ligament
Fallopian tube	vagina
ovary	vulva

51.

The Committee recommends that the title-heading be changed to:

Cancer and other malignant tumors of the genital organs of the male

The approved terms are:

Cancer and other malignant tumors of	Cancer and other malignant tumors of
epididymis	scrotum
penis	seminal vesicle
prostate	spermatic cord
prepuce	testicle

52. Cancer and other malignant tumors of the urinary organs [New title]

The approved terms are:

Cancer of bladder	Embryonal carcinosarcoma of kidney
kidney	Multiple new growth of kidney
ureter	Renal cancer
urethra	Rhabdomyosarcoma of kidney

The Committee recommends the transfer of Cancer of adrenal and Cancer of suprarenal to 54.

The Committee recommends the transfer of Cancer of bladder (female), kidney (female), ureter (female), urethra (female), Rhabdomyosarcoma of kidney (female), Multiple new growth of kidney (female), and Renal cancer (female) from title 54.

53. Cancer and other malignant tumors of the skin

The approved terms are:

Cancer of
  (specified site of skin surface)
  umbilicus

Rodent ulcer
X-ray cancer

54. Cancer and other malignant tumors of other or unspecified organs

The approved terms are:

Cancer of abdomen (without further qualification)
  accessory sinus
  adrenal
  antrum
    Highmore
  axilla
  bone (except maxillae)
  brain
  cervical gland
  chest
    wall
  choroid
  cord (spine)
  eye
  frontal sinus
  groin
  maxillary sinus
  membrane of brain
    spinal cord

Cancer of meninges
  middle ear
  orbit
  parotid gland
  pelvic viscera
  pituitary body
  spinal cord
    membrane
  spleen
  submaxillary gland
  suprarenal
  thymus gland
  thyroid gland
Disseminated cancer
General carcinomatosis
  sarcomatosis
Intraabdominal cancer
Malignant lymphoblastoma
Miliary carcinosis
Multiple cancer

The Committee recommends the transfer of Cancer of adrenal and Cancer of suprarenal from 52 to this title.

The Committee recommends the transfer of Cancer of bladder (female), kidney (female), ureter (female), urethra (female), Rhabdomyosarcoma of kidney (female), Multiple new growth of kidney (female), and Renal cancer (female), to title **52.**

55. Nonmalignant tumors (Nature specified)

The approved subtitles and terms are:

(*a*) **Nonmalignant tumors of the ovary**

Dermoid cyst of ovary
Fibroid of ovary
Hematoma of ovary
New growth of ovary (nonmalignant)
Ovarian tumor (nonmalignant)
Papilloma of ovary
Tumor of ovary (nonmalignant)

(*b*) **Nonmalignant tumors of the uterus**

Deciduoma
Fibrocyst of uterus
Fibroid body of uterus
  of uterus
  tumor (when evidently referring to fibroid tumor of uterus
Fibroma (female) of uterus
Fibromyoma of uterus
Multiple fibroids
Myoma of uterus
New growth of uterus (nonmalignant)
Polypus of uterus
Submucous fibroid (female)
Tumor of uterus (nonmalignant)

(*c*) **Nonmalignant tumors of other female genital organs**

Hematoma of broad ligament
Nonmalignant new growth of uterine ligament
  tumor of broad ligament
Nonmalignant tumor of Fallopian tube
  uterine ligament
  vagina
  vulva

(*d*) **Nonmalignant tumors of the brain and cerebral meninges**

Basilar tumor (nonmalignant) Cerebellar tumor (nonmalignant) Cerebral glioma (nonmalignant) tumor (nonmalignant) Glioma of brain (nonmalignant) cerebellum (nonmalignant) Intracranial tumor (nonmalignant) Meningeal tumor (nonmalignant)	Nonmalignant new growth of brain membrane of brain Nonmalignant tumor of brain corpora quadrigemina meninges motor tract pons Varolii

(*e*) **Nonmalignant tumors of other organs**

The approved terms are:

Nonmalignant tumors of other organs, specified as to site and nature

56. Tumors of which the nature is not specified

The approved subtitles and terms are:

(*a*) **Tumors of the ovary (nature unspecified)**

New growth of ovary Ovarian tumor	Tumor of ovary

(*b*) **Tumors of the uterus (nature unspecified)**

New growth of uterus	Tumor of uterus

(*c*) **Tumors of other female genital organs (nature unspecified)**

New growth of uterine ligament Tumor of broad ligament Fallopian tube	Tumor of uterine ligament vagina vulva

(*d*) **Tumors of the brain (nature unspecified)**

Cerebellar tumor Glioma of cerebellum Meningeal tumor	New growth of brain membrane of brain Tumor of brain (site specified)

(*e*) **Tumors of other organs (nature unspecified)**

Tumors of which the nature is *not* specified, but the site is specified (except as included under subdivisions *(a)*, *(b)*, *(c)*, and *(d)*).

III. RHEUMATIC DISEASES, NUTRITIONAL DISEASES, DISEASES OF THE ENDOCRINE GLANDS, AND OTHER GENERAL DISEASES

57. Acute rheumatic fever

The approved subtitles and terms are:

(*a*) **Acute rheumatic pericarditis**

Acute rheumatic pericarditis	Rheumatic pericarditis

(*b*) **Acute rheumatic endocarditis**

Acute rheumatic endocarditis	Rheumatic carditis endocarditis pancarditis

(*c*) **Others under this title**

Acute articular rheumatism inflammatory rheumatism rheumatic arthritis fever	Rheumatic fever myocarditis pleurisy

58. Chronic rheumatism, osteoarthritis

The approved terms are:

Arthritis deformans	Infectious spondylitis
Atrophic arthritis	Multiple arthritis
Chronic arthritis	Osteoarthritis
articular rheumatism	Polyarthritis (nonvertebral)
hypertrophic osteoarthritis	Primary progressive arthritis
infectious arthritis	Proliferative arthritis
rheumatism	Rheumatoid arthritis
rheumatoid arthritis	Spondylitis deformans
Degenerative arthritis	
Hypertrophic arthritis	

The Committee recommends the addition of the following terms: Atrophic arthritis, Degenerative arthritis, Hypertrophic arthritis, Infectious spondylitis, Proliferative arthritis, Primary progressive polyarthritis.

59. Gout

The approved terms are:

Gout of joint	Gouty iritis
	synovitis
	Podagra

60. Diabetes mellitus

The approved terms are:

Acidosis (diabetic)	Diabetic coma
Diabetes mellitus	gangrene
Diabetic (any condition so qualified)	Hyperglycemia

The Committee recommends the addition of the term Hyperglycemia.

61. Scurvy

The approved terms are:

Infantile scurvy	Scurvy
Scorbutus	

62 Beriberi

The approved terms are:

Beriberi	Kakke

63. Pellagra

The approved terms are:

Insanity of pellagra	Pellagra

64. Rickets

The approved terms are:

Rachitis	Rickets

65. Osteomalacia

The approved terms are:

Mollities ossium	Osteomalacia

66. Diseases of the pituitary body

The approved terms are:

Dyspituitarism	Hyperpituitarism
Gigantism	Hypopituitarism

67. Diseases of the thyroid and parathyroid glands

The approved subtitles and terms are:

(*a*) **Simple goiter**

Adenoma of thyroid gland	Colloid goiter
Adenomatous goiter	Cystic goiter
Bronchocele	Enlargement of thyroid gland

(*b*) **Exophthalmic goiter**

Exophthalmic cachexia
goiter
Hyperthyroidism
Thyrotoxicosis
Toxic adenoma of thyroid gland
goiter

(*c*) **Myxedema and cretinism**

Cretinism
Cretinoid degeneration
Endemic cretinism
deaf-mutism
Hypothyroidism
Myxedema of thyroid gland
Pachydermic cachexia

(*d*) **Other diseases of the thyroid gland**

Abscess of thyroid gland
Atrophy of thyroid gland
Suppuration of thyroid gland

(*e*) **Diseases of the parathyroid gland**

Hyperparathyroidism
Hypoparathyroidism
Parathyroprival tetany

68. Diseases of the thymus gland

The approved terms are:

Atrophy of thymus gland
Enlargement of thymus gland
Hypertrophy of thymus gland
Inflammation of thymus gland
Lymphatism
Persistent thymus gland
Status lymphaticus
thymicolymphaticus
thymicus

69. Diseases of the adrenals (Addison's disease, not specified as tuberculous)

The approved term is:

Addison's disease

The Committee recommends the addition of hypoadrenalism.

70. Other general diseases

The approved terms are:

Acidosis (nondiabetic)
Adiposis dolorosa
Amyloid liver
spleen
Cyclic vomiting
Diabetes insipidus
Hemochromatosis
Lardaceous degeneration of kidney
liver
Ochronosis
Pentosuria
Sprue (thrush)
Thrush
Waxy degeneration of kidney
liver
Waxy liver

The Committee recommends the transfer of Sprue (thrush) and of Thrush from title 43 to this title.

IV. DISEASES OF THE BLOOD AND BLOOD-MAKING ORGANS

71. Hemorrhagic conditions

The approved subtitles and terms are:

(*a*) **Primary purpuras**

Essential thrombocytosis
Peliosis rheumatica
Purpura hemorrhagica
rheumatica
Thrombocytopenic purpura

The Committee recommends the addition of: Essential thrombocytosis and Thrombocytopenic purpura to the list of terms under this title.

(*b*) **Hemophilia**

Bleeder
Hemophilia neonatorum

72 Anemias

The approved subtitles and terms are:

(a) **Pernicious anemia**

Aplastic anemia	Pernicious anemia
Hemolytic anemia	Progressive anemia

(b) **Other anemias**

Anemia (secondary to acute or chronic blood loss)	Chlorosis
	Simple anemia

73. Leukemias and pseudoleukemias

The approved subtitles and terms are:

(a) **True leukemias**

Acute lymphocytic leukemia	Leukemia
lymphoid leukemia	Leukocythemia
Chronic lymphocytic leukemia	Lymphochloroma
lymphoid leukemia	Myeloid leukemia

(b) **Pseudoleukemias (Hodgkin's disease)**

Lymphadenia	Malignant lymphadenoma
Lymphadenoma of spleen	Multiple lymphadenoma
Lymphadenosis	Pseudoleukemia (Hodgkin's disease)

74. Diseases of the spleen

The approved terms are:

Abscess of spleen	Megalosplenia
Enlargement of spleen	Splenic anemia
Infection of spleen	Splenomegalia

75. Other diseases of the blood and blood-making organs

The approved terms are:

Agranulocytosis	Polycythemia
Chronic polycythemia	

V. CHRONIC POISONINGS AND INTOXICATIONS

76. Alcoholism (acute or chronic)

The approved terms are:

Acute alcoholism	Alcoholic polyneuritis
ethylism	psychosis
Alcohol poisoning (ethyl)	Chronic alcoholism
Alcoholic apoplexy	Delirium tremens
cerebral apoplexy	Dipsomania
congestion	Ethylism
neuritis	Mania à potu
paralysis	Serous alcoholic meningitis

The Committee recommends the transfer of Alcoholic apoplexy, Alcoholic cerebral apoplexy, and Alcoholic cerebral congestion from title 83 (a), and of Alcoholic neuritis, Alcoholic paralysis, and Alcoholic polyneuritis from 88 (a) to this title.

77. Chronic poisoning by other organic substances

The approved subtitles and terms are:

(a) **Occupational**

Occupational poisoning (any organic substance)

(b) **Other chronic poisoning by organic substances**

The Committee did not formally approve as inclusions any of the terms which now appear under this subtitle; the great majority of those now listed in the Manual of the International List would undoubtedly be approved. The Committee recommends, however, that the terms Epidemic gangrene and Poisonous maize be omitted.

78. Chronic poisoning by mineral substances

The approved subtitles and terms are:

(*a*) **Lead**

Chronic lead poisoning
Colica pictonum
Lead cachexia
 colic
 encephalitis
 encephalopathy
 paralysis
 poisoning (chronic or unqualified)
Morbus pictonum
Painters' colic
Plumbism
Saturnine gout
 nephritis
Saturnism
Tetra-ethyl-lead poisoning

(*b*) **Occupational (except lead)**

Occupational poisoning (any mineral substance except lead)

(*c*) **Other chronic poisoning (any mineral substances)**

The Committee did not formally approve as inclusions any of the terms which now appear under this subtitle; the great majority of those now listed in the United States Manual of the International List would undoubtedly be approved.

VI. DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE

79. Encephalitis (nonepidemic)

The approved terms are:

Abscess of brain
 cerebellum
 pons Varolii
Encephalitis (nonepidemic)
Inflammation of brain
Intracranial abscess
Suppurative encephalitis

80. Men'ngitis

The approved subtitles and terms are:

(*a*) **Simple meningitis**

Cerebral meningitis
 pachymeningitis
Cervical pachymeningitis
Chronic cerebrospinal meningitis
Disseminated meningoencephalomyelitis
External pachymeningitis
Hematoma of dura mater
Hemorrhagic internal pachymeningitis
 pachymeningitis
Internal pachymeningitis
Pachymeningitis
Pneumococcic cerebrospinal meningitis
 meningitis
Purulent meningitis
Streptococcic cerebrospinal meningitis
Suppurative cerebrospinal meningitis
 external pachymeningitis
 internal pachymeningitis
 leptomeningitis
 meningitis

The Committee recommends the addition of: Disseminated meningoencephalomyelitis.

(*b*) **Acute cerebrospinal meningitis (other than of meningococcic origin)**

Acute cerebrospinal meningitis (not meningococcic)
Cerebrospinal meningitis (not meningococcic)

The Committee recommends that the heading of this subtitle be changed to—

Acute cerebrospinal meningitis (other than of meningococcic origin)

81. Progressive locomotor ataxia (tabes dorsalis)

The Committee recommends that the heading be changed to read:

Tabes dorsalis (locomotor ataxia)

The approved terms are:

Locomotor ataxia
Tabes dorsalis

82 Other diseases of the spinal cord

The approved terms are:

Acute ascending paralysis
Amyotrophic lateral sclerosis
Bulbar paralysis
Chronic myelitis
Combined sclerosis of spinal cord
Disseminated myelitis
Hematomyelia
Hematomyelitis
Hematorrhachis
Hemorrhage of spinal cord
Hereditary ataxia
  sclerosis
  spastic paraplegia
  spinal ataxia
Labioglossolaryngeal paralysis
Labioglossopharyngeal paralysis
Lateral sclerosis
Myelitis from pressure
  of spinal cord
Polioencephalitis inferior
Primary lateral sclerosis
Progressive bulbar paralysis
  multiple paralysis
  muscular atrophy
  spinal amyotrophia
    paralysis
Pseudohypertrophic paralysis
Spastic spinal paralysis
Syringomyelia
Transverse myelitis

The Committee recommends the addition of Hereditary sclerosis.

The Committee further recommends that all reports of spinal paralysis (without further qualification) be queried for syphilis.

83. Cerebral hemorrhage, cerebral embolism, and thrombosis

The approved subtitle and terms are:

(*a*) Cerebral hemorrhage

Apoplectic stroke
Apoplexy
  of brain
    meninges
Bulbar apoplexy
  hemorrhage
Cerebral apoplexy
  hemorrhage (age 1 month and over)
Clot on brain
Epidural hemorrhage
Hemorrhage of brain (age 1 month and over)
Hemorrhage of cerebellum
  cerebrum
  medulla
  meninges
  pons
Intracranial hemorrhage (age 1 month and over)
Paralytic shock
  stroke
Pontine hemorrhage
Rupture of blood-vessel in brain
Ventricular hemorrhage

The Committee recommends the transfer of Alcoholic apoplexy, Alcoholic cerebral apoplexy, and Alcoholic cerebral congestion to title no. 76 (Alcoholism).

The Committee recommends that the term Cerebral infarction be transferred to subtitle (*b*).

(*b*) Cerebral embolism and thrombosis

Basilar thrombosis
Cerebral embolism
  infarction
  thrombosis
Sinus thrombosis
Thrombosis of cavernous sinus
  lateral sinus

(*c*) Softening of the brain

Cerebral softening
Encephalomalacia
Softening of brain

(*d*) Hemiplegia and other paralysis, cause unspecified

Congenital hemiplegia
Hemiplegia
Paraplegia

84. General paralysis of the insane

The approved terms are:

Chronic diffuse meningoencephalitis
Dementia paralytica
General paralysis (insane or reported from asylum)
  paresis
  tabetic paralysis
Generalized paralysis (insane)
Paralysis of insane
Paretic dementia
Progressive general paralysis
Taboparesis

85. Dementia praecox and other psychoses

The approved terms are:

Circular insanity
Dementia
  praecox
Exhaustive psychosis
Infective psychosis
Manic depressive psychosis
Paranoia
Primary dementia
Schizophrenia
Terminal dementia
Toxic psychosis

86. Epilepsy

The approved terms are:

Epilepsy
Epileptic convulsions
  dementia
  psychosis
Grand mal
Idiopathic epilepsy
Status epilepticus

87. Convulsions (under 5 years of age)

The approved terms are:

Convulsions (—5y)
Infantile convulsions (—5y)
  spasms (—5y)

NOTE.—In 1918 this Committee recommended that the Convulsions title be abolished and that the appropriate inclusions be transferred to Ill-defined diseases. The International Conference rejected this recommendation in 1920, and we did not insist upon it at the 1929 session. The Committee now renews its original recommendation with the qualification that Convulsions become a subtitle under title no. 201.

88. Other diseases of the nervous system

The approved subtitles and terms are:

(*a*) **Neuralgia and neuritis**

General neuritis
Infectious neuritis
Multiple neuritis
Neuritis (any nerve)
Peripheral neuritis
Polyneuritis
Tic douloureux
Trigeminal neuralgia

The Committee recommends the transfer of Alcoholic neuritis, Alcoholic paralysis, and Alcoholic polyneuritis to title no. 76 (Alcoholism).

(*b*) **Other diseases of the nervous system**

Acquired hydrocephalus
Acute hydrocephalus
Cerebral diplegia of children
Chronic progressive chorea (Huntington's chorea)
Idiopathic cortical seizure
Infantile cerebral diplegia
  paralysis
  imbecility
  spastic paralysis
Internal hydrocephalus
Lobular cerebral sclerosis
Mongolism
Myotonia congenita
Paralysis
  of diaphragm
    phrenic nerve
    pneumogastric nerve
Paramyoclonus multiplex
Polioencephalitis superior
Psammoma

The Committee recommends the addition of Idiopathic cortical seizure to the list of inclusions.

89. Diseases of the organs of vision

The approved terms are:

Abscess of cornea
Cataract (all forms)
Glaucoma
Ophthalmia

The Committee recommends the transfer of Trachoma to title no. 44, subtitle (*c*).

90. Diseases of the ear and of the mastoid process

The approved subtitles and terms are:

(*a*) **Diseases of the ear**

Acute suppurative otitis media
Caries middle ear
Chronic suppurative otitis media
Labyrinthine suppuration
  vertigo
Otitic meningitis
Otitis externa
  media
Purulent otitis media
Suppurative otitis media

(b) **Diseases of the mastoid process**

Abscess of mastoid process
Acute suppurative mastoiditis
Chronic suppurative mastoiditis
Disease of mastoid cell
Empyema of mastoid process
Mastoid abscess
Mastoiditis
Necrosis of mastoid

VII. DISEASES OF THE CIRCULATORY SYSTEM

91. Pericarditis

The approved terms are:

Adherent pericardium
Adhesive pericarditis
Effusion of pericardium
Fibrinous pericarditis
Hemopericardium
Hydropericardium
Hydropneumopericardium
Mediastinopericarditis
Pericarditis
with effusion
Pneumopericardium
Purulent pericarditis
Pyopericardium
Pyopneumopericardium
Suppurative pericarditis

The Committee recommends for Hemopericardium, that inquiry be made as to source of blood—traumatic? aneurysm?

92. Acute endocarditis

The approved subtitles and terms are:

(a) **Specified as acute**

Acute endocarditis
infectious endocarditis
ulcerative endocarditis
valvular endocarditis
Bacterial endocarditis (specify infecting organism)
Malignant endocarditis
Septic endocarditis
Subacute bacterial endocarditis
Ulcerative endocarditis

(b) **Unspecified (under 45 years of age)**

Endocarditis (—45y)
Endopericarditis (—45y)
Periendocarditis (—45y)
Vegetative endocarditis (—45y)

The Committee recommends the retention of this subtitle in the interests of comparability with previous years.

93. Chronic endocarditis, valvular diseases

The approved subtitles and terms are:

(a) **Endocarditis, specified as chronic, and other valvular diseases**

Aneurysm of valve of heart
Aortic incompetency
insufficiency
obstruction
regurgitation
stenosis
valvular disease of heart
Atheroma of valve of heart
Chronic endocarditis
mitral endocarditis
rheumatic endocarditis
ulcerative endocarditis
valvular endocarditis
heart disease
Incompetency of aortic valve
mitral valve
tricuspid valve
Insufficiency of aortic valve
mitral valve
tricuspid valve
Mitral incompetency
insufficiency
obstruction
regurgitation
stenosis
valvular disease of heart
Pulmonary stenosis
valvular disease of heart
Tricuspid incompetency
insufficiency
regurgitation
stenosis
valvular disease of heart
Valvular disease of heart

(b) **Endocarditis, unspecified (45 years and over)**

Endocarditis (45y+)
Endopericarditis (45y+)
Periendocarditis (45y+)
Vegetative endocarditis (45y+)

The Committee recommends the retention of this subtitle in the interests of comparability with previous years.

94. Diseases of the myocardium

The approved subtitles and terms are:

(*a*) **Acute myocarditis**

Acute interstitial myocarditis
myocarditis

(*b*) **Myocarditis, unspecified (under 45 years of age)**

Myocarditis (—45y)
Myopericarditis (—45y)

(*c*) **Chronic myocarditis and myocardial degeneration**

Aneurysm of heart
Brown atrophy of heart
Chronic interstitial myocarditis
myocarditis
Fatty degeneration of heart
Fatty degeneration of myocardium
Hypertrophy of myocardium
Interstitial myocarditis
Myocardial degeneration

(*d*) **Unspecified**

Inflammation of myocardium (age 45 and over)
Myocardial disease
Myocardial insufficiency
Myocarditis (age 45 and over)

95. Diseases of the coronary arteries and angina pectoris

The approved subtitles and terms are:

(*a*) **Angina pectoris**

Angina of heart
pectoris
Cardiac angina
Stenocardia

(*b*) **Diseases of the coronary arteries**

Coronary occlusion
Disease of coronary artery
Embolism of coronary artery
Obstruction of coronary artery of heart
Rupture of coronary artery of heart
Thrombosis of coronary artery
Thrombotic occlusion of coronary artery

96. Other diseases of the heart

The approved subtitles and terms are:

(*a*) **Functional diseases of the heart**

Adams-Stokes' disease
Auricular fibrillation
Brachycardia
Bradycardia
Heart-block
Paroxysmal tachycardia
Stokes-Adams' disease
Tachycardia

When Auricular fibrillation is certified, inquiry should be made as to whether organic heart disease was also present.

(*b*) **Other and unspecified**

Terms other than those recommended under titles 91 to 95, inclusive, and subtitle 96 (*a*) are undesirable. Hence, there is no list of approved inclusions for subtitle 96 (*b*).

97. Aneurysm (except of the heart)

The approved terms are:

Aneurysm (specify site)
Arteriovenous aneurysm

98. Arteriosclerosis (diseases of the coronary arteries excepted)

The approved terms are:

Arteriocapillary fibrosis
Arteriofibrosis
Arteriolar sclerosis
Arteriosclerosis
of brain
Atheroma
Atherosclerosis
Diffuse arteriosclerosis
Endarteritis deformans
General arteriosclerosis

99. Gangrene (not elsewhere provided for)

The approved terms are:

Ainhum
Cancrum oris
Dermatitis gangrenosa
Dry gangrene
Gangrene
Moist gangrene
Noma of mouth
  vulva
Phagedena of penis
  vulva
Raynaud's disease
Senile gangrene
Symmetrical gangrene
Tropical phagedena

100. Other diseases of the arteries

The approved terms are:

Aortitis
Arteritis
  obliterans
Embolism of artery (except coronary and pulmonary)
Endarteritis
  obliterans
Fat embolism
Obliterative arteriolar disease
Obstruction of artery by clot
Occlusion of artery by clot
Thrombosis of artery (except coronary and pulmonary)
  iliac artery

101. Diseases of the veins (varices, hemorrhoids, phlebitis, etc.)

The approved terms are:

Air embolism
Aneurysmal varix
Endophlebitis
Hemorrhoids
Periphlebitis
Phlebitis (of specified vein or sinus, except puerperal)
Pylephlebitis
Rupture of varicose vein
Thrombophlebitis
Thrombosis of vein (except coronary, cerebral, pulmonary, or puerperal)
Varices
Varicocele
Varix (of specified site)

102. Diseases of the lymphatic system (lymphangitis, etc.)

The approved terms are:

Adenitis (of specified site)
Lymphadenitis
Lymphangitis
Nonfilarial chylocele
  chylous ascites
Obliteration of lymphatic vessel

103. Idiopathic anomalies of the blood pressure

The approved terms are:

High blood-pressure
Hyperpiesis
Hypertension
Hypertensive vascular disease
Vascular hypertension

The Committee recommends that Hypertensive vascular disease be added.

104. Other diseases of the circulatory system

The approved terms are:

Epistaxis (cause and site to be specified)
Hemorrhage (cause and site to be specified)

VIII. DISEASES OF THE RESPIRATORY SYSTEM

105. Diseases of the nasal fossae and annexae

The approved subtitles and terms are:

(*a*) **Diseases of the nasal fossae**

Abscess of nasal fossa
Cerebrospinal rhinorrhea
Coryza
Nasopharyngeal abscess
Ozena
Rhinitis

(*b*) **Others under this title**

Abscess of antrum of Highmore
ethmoidal sinus
frontal sinus
maxillary sinus
nasal sinus
sphenoidal sinus
Disease of frontal sinus
Empyema of frontal sinus
Ethmoidal sinusitis
Ethmoiditis
Frontal sinusitis
Maxillary sinusitis
Necrosis of antrum
Sphenoidal sinusitis
Sphenoiditis
Suppuration of frontal sinus

106. Diseases of the larynx

The approved terms are:

Catarrh of larynx
throat
Catarrhal croup
laryngitis
Congestion of glottis
Edema of glottis
larynx
Epiglottiditis
Gangrenous laryngitis
Infective laryngitis
Inflammation of larynx
Laryngismus stridulus
Laryngitis
Paralysis of glottis
larynx
Phlegmonous laryngitis
Spasm of glottis
larynx
Spasmodic croup
laryngitis
Stenosis of larynx
Stridulous croup
laryngitis
Ulcerative laryngitis

The Committee recommends that Edema of larynx and Edema of glottis be always queried for cause.

107. Bronchitis

The approved subtitles and terms are:

(*a*) **Acute**

Acute bronchitis
pulmonary catarrh
purulent bronchitis
Croupous bronchitis
Fibrinous bronchitis
Tracheitis
Tracheobronchitis

(*b*) **Chronic**

Bronchial catarrh
Bronchiectasis
Chronic bronchitis
catarrhal bronchitis
Dilatation of bronchi
Fetid bronchitis
Peribronchitis
Subacute bronchitis
Ulcerative bronchitis

(*c*) **Unspecified (under 5 years of age)**

(*d*) **Unspecified (5 years of age and over)**

These subtitles are intended to cover incomplete reports, the only distinction being the age of the decedent. No recommendations are made as to approved terms.

108. Bronchopneumonia (including capillary bronchitis)

The approved terms are:

Aspiration pneumonia (query for cause)
Bronchopneumonia
Bronchopulmonitis
Catarrhal inflammation of lung
pneumonia
Croupous bronchopneumonia
Deglutition pneumonia
Inhalation pneumonia (query for cause)
Inspiration pneumonia (query for cause)
Lobular pneumonia
Septic bronchopneumonia (query for cause of sepsis)

109. Lobar pneumonia

The approved terms are:

Acute hepatization of lung
inflammation of lung
interstitial pneumonia
pleuropneumonia
Bilateral lobar pneumonia
pneumonia
Central pneumonia
Consolidation of lung
Croupous pneumonia
Diplococcus pneumonia
Double pleuropneumonia
pneumonia
Fibrinous pneumonia
Hepatization of lung
Lobar pneumonia
Pneumococcus pneumonia
Solidification of lung
Unresolved pneumonia

110. Pneumonia, unspecified

The approved terms are:

Pneumonia (query for primary cause and for type)
Septic pleuropneumonia
  pneumonia
Suppurative pneumonia

111. Pleurisy

The approved terms are:

Chylous hydrothorax
Diaphragmatic pleurisy
Double empyema
  hydrothorax (query for cause)
  pleuritis
Empyema
Exudative pleurisy
Fibrinous pleurisy
Fibrous pleurisy
Hemopneumothorax
Hydropneumothorax
Hydrothorax (query for cause)
Plastic pleurisy
Pleurisy with effusion
Pleuropericarditis
Pneumothorax
Purulent pleurisy
Pyopneumothorax
Pyothorax
Serofibrinous pleurisy
Seropurulent pleurisy
Subacute pleurisy
Suppurative pleurisy
Thoracic fistula

112. Congestion, edema, embolism, hemorrhagic infarct, and thrombosis of the lungs

The approved subtitles and terms are:

(*a*) **Pulmonary embolism and thrombosis**

Embolism of lung
  pulmonary artery
Infarction of lung
Pulmonary embolism
Pulmonary infarction
  thrombosis
Thrombosis of pulmonary artery

(*b*) **Others under this title**

Apoplexy of lung
Congestion of lung (query for cause)
Edema of lung
Hypostatic congestion (query for cause)
  pneumonia
Passive congestion of lung
Pulmonary apoplexy
  congestion (query for cause)
  edema
  stasis (query for cause)

113. Asthma

The approved terms are:

Asthma
Asthmatic bronchitis
Bronchial asthma
Catarrhal asthma
Spasmodic asthma

The Committee recommends querying for cause, so far as practicable, all cases reported under this title.

114. Pulmonary emphysema

The approved terms are:

Congenital emphysema
Emphysema of lung
Hypertrophic emphysema
Interlobular emphysema
Pulmonary emphysema
Senile emphysema
Vesicular emphysema

115. Other diseases of the respiratory system (tuberculosis excepted)

The approved subtitles and terms are:

(a) Chronic interstitial pneumonia, including occupational diseases of the respiratory system

Anthracosis of lung
Asbestosis
Axgrinders' disease
Chronic hepatization of lung
    inflammation of lung
    interstitial inflammation of lung
        pneumonia
Chronic pneumonia
    pneumonitis
Colliers' lung
Grinders' asthma
Interstitial pneumonia
Metal polishers' disease
Pneumoconiosis
Potters' asthma
Pulmonary anthracosis
Silicosis
Stone-masons' lung

The committee recommends the addition of the term Asbestosis.

(b) Others, including gangrene of the lung

Abscess of lung (only with cause stated)
    mediastinum
Acute mediastinitis
Chronic mediastinitis
    pleuropneumonia
Gangrene of lung
Hernia of lung
Pulmonary abscess (only with cause stated)
Stenosis of bronchi
    trachea
Tracheostenosis
Ulcer of bronchi
    trachea

IX. DISEASES OF THE DIGESTIVE SYSTEM

116. Diseases of the buccal cavity and annexa and of the pharynx and tonsils (including adenoid vegetations)

The approved subtitles and terms are:

(a) Diseases of the pharynx and tonsils

Abscess of pharynx
    tonsil
Acute pharyngitis (specify organism when known)
    tonsillitis (specify organism when known)
Cellulitis of pharynx
Chronic pharyngitis (specify organism when known)
    tonsillitis (specify organism when known)
Follicular amygdalitis
    tonsillitis
Parenchymatous tonsillitis
Peritonsillar abscess
Postpharyngeal abscess
Quinsy
Retropharyngeal abscess
Stricture of pharynx (with cause of stricture and manner of death stated, e. g., starvation)
Suppurative tonsillitis
Tonsillopharyngeal abscess

It is recommended that Septic sore throat, Streptococcic sore throat, and Vincent's angina be transferred to title no. 44 (c).

(b) Others under this title

Adenoid growth
    vegetations
        of nasal fossa
Adenoids
Glossitis
Leukoplakia
Ludwig's angina
    disease
Pyorrhea alveolaris
Stomatitis
Ulorrhagia

The term Adenoids is approved only when applied to deaths of children under 1 year; if used as a cause of death in decedents over 1 year of age, it should not be accepted without querying.

117. Diseases of the esophagus

The approved terms are:

Abscess of esophagus
Obstruction of esophagus
Stenosis of esophagus
Stricture of esophagus
Ulcer of esophagus

118. Ulcer of the stomach and duodenum

The approved subtitles and terms are:

(*a*) **Ulcer of the stomach**

Gastric ulcer
Gastroduodenal ulcer
Gastroesophageal ulcer
Peptic ulcer
Perforating gastric ulcer
  ulcer of stomach
Perforation of stomach (nontraumatic, as from ulcer)
Round ulcer of stomach
Ulcer of pylorus
  stomach
Ulcus rotundum
  ventriculi

(*b*) **Ulcer of the duodenum**

Duodenal ulcer
Perforating ulcer of duodenum
Ulcer of duodenum

The Committee recommends the transfer of Gastrointestinal ulceration to 120 or 121, according to age.

119. Other diseases of the stomach (cancer excepted)

The approved terms are:

Abscess of stomach
Cardiospasm (for children under 1 year of age)
Gangrene of stomach
Hematemesis (1 m+)
Hemorrhagic gastritis
Hypertrophic stenosis of pylorus
Laceration of stomach (not external violence)
Obstruction of pylorus (6m+)
Phlegmonous gastritis
Pylorospasm (for children under 1 year of age)
Rupture of stomach (nontraumatic)
Stenosis of pylorus (nonmalignant) (age 6 months and over)
Stricture of cardia of stomach (nonmalignant)
  pylorus (nonmalignant) (age 6 months and over)
  stomach (nonmalignant)

120. Diarrhea and enteritis (under 2 years of age)

See title 121 for approved terms

121. Diarrhea and enteritis (2 years and over)

The approved terms are:

Catarrhal colitis (acute or chronic)
  diarrhea (acute or chronic)
  enteritis (acute or chronic)
  gastroduodenitis (acute or chronic)
  gastroenteritis (acute or chronic)
  ileocolitis (acute or chronic)
Colitis
Croupous colitis
  enteritis

Diarrhea (specify cause)
Enteritis
Enterocolitis
Gastroenteritis
Gastrointestinal ulceration
Hemorrhagic colitis
enteritis
gastroenteritis
Ileocolitis
Infantile diarrhea
enteritis
Membranous colitis
enteritis
entercolitis
ileocolitis
Mucoenteritis
Necrotic colitis
Perforating ulcer of intestine
Phlegmonous enteritis
Pseudomembranous enteritis
Sarcinal infection
Sigmoiditis
Ulcer of colon
intestine
Ulceration of colon
ileum
intestine
Ulcerative colitis
enteritis
enterocolitis
ileocolitis
perforation of intestine

For the above terms (under 120 and 121) compile deaths of infants under 2 years of age under title 120 and deaths of persons aged 2 years and over under title 121).

The Committee recommends the transfer of Gastrointestinal ulceration from title no. 118 (*b*) to 120 or 121, according to age.

122. Appendicitis

The approved terms are:

Abscess of appendix
iliac fossa
vermiform appendix
Appendicitis
Appendicular abscess
Foreign body in appendix
Fulminating appendicitis
Gangrenous appendicitis
Perforative appendicitis
Pericecal abscess
Perityphlitic abscess
Perityphlitis
Postcecal abscess
Recurrent appendicitis
Ruptured appendix
Sloughing appendix
Suppurative appendicitis
Typhlitis
Typhlodicliditis

123. Hernia, intestinal obstruction

The approved subtitles and terms are:

(*a*) **Hernia**

Gangrenous hernia (with site specified)
Herniotomy
Incarcerated hernia (with site specified)
Strangulated hernia (with site specified)

(*b*) **Intestinal obstruction**

Fecal impaction
Ileus
Impaction of feces
Intestinal obstruction (site and cause to be specified)
Intussusception
Strangulation of bowel
Telescoped bowel
Twist of bowel
Volvulus

124. Other diseases of the intestines

The approved terms are:

Abscess of Meckel's diverticulum
Diverticulitis
Enteric paralysis
Gangrene of rectum
Ischiorectal abscess
Paralysis of colon
intestine
Perforation of bowel
intestine
Periproctitis
Perirectal abscess
cellulitis
Procidentia recti
Rupture of duodenum
rectum
Stricture of anus
rectum

125. Cirrhosis of the liver

The approved subtitles and terms are:

(*a*) **Specified as alcoholic**

Alcoholic cirrhosis
of liver
Alcoholic hepatitis
liver

(*b*) **Not specified as alcoholic**

Atrophic cirrhosis of liver
Biliary cirrhosis
Chronic hypertrophic hepatitis
Cirrhosis of liver
Congenital cirrhosis (age 3 months and over)
of liver (age 3 months and over)
Congenital hepatic cirrhosis (age 3 months and over)
Fatty degeneration of liver
liver
Hepatic cirrhosis
Hypertrophic cirrhosis
cirrhosis of liver
Portal cirrhosis

126. Other diseases of the liver (including acute yellow atrophy of liver)

The approved subtitles and terms are

(*a*) **Acute yellow atrophy of liver**

Acute atrophy of liver
parenchymatous hepatitis
yellow atrophy of liver
Icterus gravis
Malignant hepatitis (age 3 months and over)
Malignant icterus (age 3 months and over)
jaundice (age 3 months and over)
Pernicious icterus
Subacute yellow atrophy of liver

The Committee recommends that Subacute yellow atrophy of liver be added.

(*b*) **Others under this title**

Abscess of liver
Diffuse suppurative hepatitis
Hematogenous icterus (age 3 months and over)
Hematogenous jaundice (age 3 months and over)
Perihepatitis

127. Biliary calculus

The approved terms are:

Biliary calculus
colic
lithiasis
Cholelithiasis
Colic from gallstones
Impacted gallstones

128. Other diseases of the gall bladder and biliary passages

The approved terms are:

Abscess of gall bladder
Acute catarrhal jaundice (age 3 months and over)
Angiocholecystitis
Angiocholitis
Biliary fistula
Catarrh of bile duct
Catarrhal cholangitis
icterus (age 3 months and over)
jaundice (age 3 months and over)
Cholangitis
Cholecystitis
Choledochitis
Chronic catarrhal jaundice
Empyema of gall bladder
Gangrene of gall bladder
gall duct
Infectious cholecystitis
Necrosis of gall bladder
Perforation of bile duct
gall bladder
gall duct
Rupture of bile duct
gall bladder
gall duct
Stenosis of bile duct
gall duct
Stricture of common duct
gall bladder
gall duct
Suppuration of gall bladder
Suppurative cholangitis
cholecystitis
choledochitis

129. Diseases of the pancreas

The approved terms are:

Abscess of pancreas
Acute gangrenous pancreatitis
hemorrhagic pancreatitis
pancreatitis
suppurative pancreatitis
Calculus of pancreatic duct
Chronic interstitial pancreatitis
suppurative pancreatitis
Cyst of pancreas (due to obstruction)
Necrosis of pancreas (infectional)
Pancreatic fat necrosis

130. Peritonitis, cause not specified

The approved terms are:

Acute fibrinopurulent peritonitis
fibrinous peritonitis
general peritonitis
hemorrhagic peritonitis
serofibrinous peritonitis
suppurative peritonitis
General purulent peritonitis
Subdiaphragmatic abscess
Subphrenic abscess

X. DISEASES OF THE GENITO-URINARY SYSTEM

131. Acute nephritis (including unspecified under 10 years of age)

The approved terms are:

Acute albuminous nephritis
Bright's diasese
diffuse nephritis
exudative nephritis
glomerulonephritis
hemorrhagic nephritis
interstitial nephritis
nephritis
Acute parenchymatous nephritis
tubular nephritis
Glomerular nephritis
Glomerulonephritis
Nephritis (—10y)
Subacute nephritis

Reports of Acute nephritis should be queried to ascertain whether it appeared as a complication or sequella of some other disease or abnormal condition and, if so, the exact nature of the same, it is especially important to query suspected puerperal cases

132. Chronic nephritis

The approved terms are:

Cardiorenal sclerosis
Chronic Bright's disease
diffuse nephritis
exudative nephritis
glomerulonephritis
interstitial nephritis
nephritis
Chronic parenchymatous nephritis
tubular nephritis
Diffuse interstitial nephritis
Granular kidney
Hypertrophic interstitial nephritis

133. Nephritis, unspecified (10 years and over)

The approved terms are.

Bright's disease (10y +)
Nephritis (10y +)

The Committee voted to approve Nephritis (unqualified) and Bright's disease (unqualified) in persons 10 years of age and over only in cases where no information definitely describing the condition as acute or chronic can be obtained.

134. Other diseases of the kidney and ureter (puerperal diseases excepted)

The approved terms are:

Abscess of kidney
Cystic degeneration of kidney
    disease of kidney
Floating kidney
Hydronephrosis
Infarct of kidney
Nephritic abscess
Nephrosis
Perinephric abscess
Perinephritic abscess
Perirenal abscess
Purulent nephritis
Pyelitis
Pyelonephritis
Pyonephritis
Pyonephrosis
Renal abscess
Septic nephritis
Suppurative nephritis
    pyelitis

The Committee recommends that the term Nephrosis be added.

135. Calculus of the urinary passages

The approved terms are:

Calculous pyelitis
    pyelonephritis
    pyonephrosis
Calculus of bladder
    kidney
    pelvis of kidney
    ureter
    urethra
Impacted calculus of kidney
    ureter
    urethra
Lithotrity
Nephrolithiasis
Pyonephrosis from calculus
Renal calculus
    colic
Stone in bladder
    kidney
Ureterolithotomy
Urinary calculus
    lithiasis
Vesical calculus

136. Diseases of the urinary bladder (tumors and calculus excepted)

The approved terms are:

Abscess of bladder
Fistula of bladder (nontraumatic; specify abnormal opening)
Gangrene of bladder
Gangrenous cystitis
Purulent cystitis
Pyocystitis
Rupture of bladder (not external violence)
Suppurative cystitis
Vesical abscess

137. Diseases of the urethra, urinary abscess, etc. (tumors and calculus excepted)

The approved subtitles and terms are:

(*a*) **Stricture of the urethra**

Stricture of urethra

(*b*) **Others under this title**

Laceration of urethra (not external violence)
Rupture of urethra (not external violence)

138. Diseases of the prostate

The approved terms are:

Abscess of prostate
Calculus of prostate
Enlargement of prostate
Hypertrophy of prostate
Inflammation of prostate
Prostatitis
Prostatocystitis

139. Diseases of the male genital organs, not specified as venereal

The approved terms are:

Circumcision for disease	Orchitis
Epididymitis	Phimosis (not congenital)
Hydrocele of spermatic cord	Spermatocele
tunica vaginalis	

The Committee recommends the transfer of Granuloma inguinale (male) to subtitle 35 (*b*).

140. Diseases of the female genital organs, not specified as venereal or puerperal

The approved subtitles and terms are:

(*a*) **Cyst of the ovary**

Cyst of ovary	Cystic ovary
Cystic oophoritis	Ovarian cyst
ovaritis	Parovarian cyst

(*b*) **Other diseases of the ovary and diseases of the Fallopian tube and parametrium**

Abscess of broad ligament	Phlegmon of broad ligament (nonpuerperal or unqualified)
Fallopian tube	Pyo-ophoritis
ovary	Pyosalpinx
Diffuse pelvic cellulitis (female)	Retrouterine abscess
Hematosalpinx	Rupture of Fallopian tube
Oophoritis	Salpingitis acute (specify organism when known)
Ovaritis	chronic (specify organism when known)
Pelvic abscess (female)	Suprapelvic abscess
cellulitis (female)	
Periuterine abscess	

(*c*) **Diseases of the uterus (nonpuerperal)**

Endometritis	Pyometra
Hemorrhage of uterus	Retroversion of uterus
Hemorrhagic metritis	Septic endometritis
Inflammation of uterus	metritis
Intrauterine hemorrhage	phlebitis
Procidentia of uterus	Suppurative metritis
Prolapse of uterus	Uterine hemorrhage
Purulent endometritis	

(*d*) **Nonpuerperal diseases of the breast (cancer excepted)**

Mastitis	Suppuration of breast
	mammary gland

(*e*) **Other diseases of the female genital organs**

Abscess of Bartholm's gland	Cellulitis of vulva
Abscess of labium majus	Ulceration of labium majus

The Committee recommends the transfer of Granuloma inguinale (female) to subtitle 35 (*b*).

XI. DISEASES OF PREGNANCY, CHILDBIRTH, AND THE PUERPERAL STATE

141. Abortion with septic conditions

The approved terms are:

Peritonitis following abortion	Pyemia following abortion
Postabortive sepsis	Septicemia following abortion

142. Abortion without mention of septic conditions (to include hemorrhage)

The approved terms are:

Abortion
Accidental abortion
    hemorrhage of pregnancy
Antepartum hemorrhage
Hemorrhage of pregnancy
Induced abortion
    premature labor
Miscarriage
Premature birth (death of mother)

143. Ectopic gestation

The approved subtitles and terms are:

(*a*) **With septic condition specified**

Infected tubal pregnancy

(*b*) **Without mention of septic condition**

Abdominal pregnancy
Ectopic gestation
    pregnancy
Extrauterine gestation
    pregnancy
Tubal abortion
    gestation
    pregnancy

144. Other accidents of pregnancy (not to include hemorrhage)

The approved terms are:

Hydatid mole
Hydatidiform mole
Multiple pregnancy

145. Puerperal hemorrhage

The approved subtitles and terms are:

(*a*) **Placenta praevia**

Placenta praevia

(*b*) **Other puerperal hemorrhage**

Accidental hemorrhage of parturition
    puerperium
Adherent placenta
Detachment of placenta
Hemorrhage after labor
    during parturition
    from detachment of placenta
    uterus after parturition
        during parturition
Hemorrhage (puerperium)
Malposition of placenta
Postpartum hemorrhage
Puerperal hemorrhage
Retained membranes
    placenta
    secundines
Retention of placenta
Separation of placenta

146. Puerperal septicemia (not specified as due to abortion)

The approved subtitles and terms are:

(*a*) **Puerperal septicemia and pyemia**

Postpartum pyemia
    sepsis
    septicemia
Puerperal erysipelas
    fever
    inflammation of uterus
    lymphangitis
    metritis
    metroperitonitis
    metrosalpingitis
    pelvic cellulitis
        peritonitis
    peritoneal infection
    peritonitis
Puerperal periuterine cellulitis
    purulent endometritis
    pyemia
    salpingitis
    sapremia
    sepsis
    septic endometritis
        fever
        infection
        metritis
        peritonitis
    septicemia
    suppurative metritis

(*b*) **Puerperal tetanus**

Puerperal tetanus

147. Puerperal albuminuria and eclampsia

The approved terms are:

Eclampsia gravidarum
of labor
pregnancy
Postpartum eclampsia
Postpuerperal nephritis
Puerperal albuminuria
convulsions
Puerperal eclampsia
nephritis
uremia
Pyelitis of pregnancy
Pyelonephritis of pregnancy
Uremia of pregnancy

148. Other toxemias of pregnancy

The approved terms are:

Emesis gravidarum
Hyperemesis gravidarum
of pregnancy
Persistent vomiting (pregnancy)
Puerperal toxemia
vomiting
Toxemia of pregnancy
Uncontrollable vomiting of pregnancy
Vomiting of pregnancy

149. Puerperal phlegmasia alba dolens, embolus, sudden death (not specified as septic)

The approved terms are:

Milk-leg (female)
Puerperal embolism
of lung
phlebitis
phlegmasia alba dolens
sudden death
thrombosis
Sudden death from
cardiac embolism after delivery
thrombosis after delivery
cerebral hemorrhage afterdelivery
pulmonary embolism after delivery
thrombosis after delivery
Venous thrombosis consequent on parturition

150. Other accidents of childbirth

The approved subtitles and terms are:

(*a*) **Caesarean operation**

Caesarean operation

(*b*) **Others under this title**

Atony of uterus during parturition
Breech presentation
Cephalotomy
Cephalotripsy
Craniotomy
Delayed delivery
Difficult labor
Diruptio uteri
Dystocia
Embryotomy
Faulty presentation (mother)
Foot presentation
Inertia of uterus
Instrumental delivery
Inversion of uterus during parturition
Laceration of cervix
pelvic floor
perineum (parturition)
Laceration of peritoneum (parturition)
urinary bladder (parturition)
uterus (parturition)
vagina (parturition)
vulva (parturition)
Multiple birth
Postpuerperal shock
Prolonged labor
Protracted labor
Rupture of bladder (parturition)
uterus (parturition)
Subinvolution of uterus
Symphysiotomy
Transverse presentation
Version

151. Other and unspecified conditions of the puerperal state

The approved terms are:

Abscess of the breast following parturition
Fissure of nipple (puerperium)
Fistula of breast (puerperal or unqualified)
Galactocele
Galactorrhea
Mammary fistula
Puerperal abscess of breast
mammary gland
diffuse mastitis
disease of breast
Puerperal fissure of nipple
fistula of breast
mammary gland
galactophoritis
inflammation of breast
insanity
mammary abscess
mammitis
mania
mastitis
melancholia

XII. DISEASES OF THE SKIN AND CELLULAR TISSUE

152. Carbuncle, Furuncle

The approved terms are:

Carbuncle
Furuncle
Furunculosis
Multiple carbuncle

153. Phlegmon, acute abscess

The approved terms are

Abscess (unqualified)
Cellulitis (*see* Abscess)

Inasmuch as an abscess at any specified location may be insufficient to cause death by itself, supplementary data as to the site and nature of the original infection should be supplied. Hence, a list of approved terms to be included under this title is omitted, as there is no limit to the number of places in which abscesses may occur. Abscess of site specified is usually classified under the particular organ or anatomical region involved.

154. Other diseases of the skin and annexa, and of the cellular tissue

The approved terms are:

Bed-sore
Decubitus
Dermatitis venenata
Elephantiasis (nonfilarial)
Malignant pemphigus
Scleroderma

The Committee recommends the transfer to subtitle 44 (*c*) of the terms Herpes zoster, Shingles, and Zona. It also recommends the transfer to subtitle 162 (*d*) of the terms Pemphigus neonatorum and Pemphigus of the infant.

Inasmuch as any one of the great number of skin diseases may lead to death through the development of secondary sepsis, it has seemed inadvisable to extend further the list of inclusions under this title, since it would be necessary to include a very large number of dermatological terms to make the list complete.

XIII. DISEASES OF THE BONES AND ORGANS OF LOCOMOTION

155. Osteomyelitis

The approved terms are:

Infective osteomyelitis
periostitis
Osteomyelitis
Suppurative osteomyelitis

156. Other diseases of the bones (tuberculosis excepted)

The approved terms are:

Caries of bone
Circumscribed periostitis
Diffuse periostitis
Fragilitas ossium
Gangrene of bone
Necrosis of bone
Osteitis deformans
Osteoarthropathy
Osteoperiostitis
Periosteal abscess
Periostitis
Pulmonary osteoarthropathy
Spontaneous fracture of bone
Suppurative periostitis

A footnote should follow this title explaining that it does not include rheumatism and tuberculosis; also that where diseases of the bone affect structures connected with the special senses—nasal fossae, ear, orbit they are to be referred to the appropriate title headings covering diseases of these organs of special sense

157. Diseases of the joints and other organs of locomotion

The approved subtitles and terms are:

(*a*) **Diseases of the joints (tuberculosis and rheumatism excepted)**

Abscess of joint (specify joint)
Arthropathy
Infective synovitis
Inflammation of joint (specify joint)
Purulent arthritis
    synovitis
Septic arthritis
Suppurative synovitis

(*b*) **Diseases of other organs of locomotion**

Abscess of bursa
    muscle
    tendon
Amyotonia congenita
Bursitis (specify site)
Infective myositis (specify site)
Inflammation of bursa (specify site)
    fascia (specify site)
    muscle (specify site)
    sheath of tendon (specify site)
Muscular dystrophy
Myasthenia gravis
Myositis
    fibrosa
    ossificans
Polymyositis
Progressive muscular dystrophy
    ossifying myositis
Spasmodic torticollis
Tenontosynovitis
Tenosynovitis
Thecal abscess
Torticollis

XIV. CONGENITAL MALFORMATIONS

158. Congenital malformations (still births not included)

The approved subtitles and terms are.

(*a*) **Congenital hydrocephalus**

Chronic hydrocephalus
Congenital cerebral tumor
    hydrocephalus
    tumor of brain
Hydrocephalus of brain
Megalocephaly

(*b*) **Spina bifida and meningocele**

Congenital spina bifida
Meningocele
Meningomyelocele
Spina bifida
Spinal hernia
    meningocele
Syringomyelocele

(*c*) **Congenital malformations of the heart**

Atelocardia
Congenital disease of heart
    malformation of heart
    valvular heart disease
Cyanosis (due to malformation of heart)
    (persistence of foramen ovale)
    from nonclosure of foramen of Botallo
Imperfect closure of foramen ovale
Morbus caeruleus
Nonclosure of foramen of Botallo
Patent ductus arteriosus
    foramen of Botallo

(*d*) **Other congenital malformations**

Branchial cyst
Cerebral meningocele
Cleft palate
Congenital amputation
atresia (of any part of body)
cerebral hernia
cystic disease of kidney
fracture
hernia (specify site)
Imperforate urethra
intestinal obstruction
laryngeal stenosis
pyloric stenosis
stenosis of intestine
larynx
tumor (specify site)
Exstrophy of bladder
Extroversion of bladder
Fissure of lip (harelip)
Harelip
Hemicephalus
Hirschsprung's disease
Hydrencephalocele
Hydromyelia
Hydrorrhachis
Imperforate anus
pharynx
rectum
Malformation (specify part of body)
Megacolon
Meningoencephalocele
Microcephaly
Monster
Omphalocele
Podencephalus
Polycystic kidney (congenital)

The Committee recommends that Polycystic kidney (congenital) be added.

XV. DISEASES OF EARLY INFANCY

159. Congenital debility

NOTE.—In the United States and Canada this title is restricted to deaths of infants under 1 year of age.

The approved terms are:

Artificial feeding (—1y)
Hydramnios (child)
Malassimilation (—1y)
Marasmus (—1y)
Puerperal eclampsia (child)
toxemia (child)

160. Premature birth

NOTE.—In the United States and Canada this title is restricted to deaths of infants under 1 year of age.

The approved terms are:

Accidental abortion
Immaturity
Miscarriage
Premature birth
Prematurity

161. Injury at birth

NOTE.—In the United States this title will be restricted to deaths of infants under 3 months of age, and in Canada under 1 year of age.

The approved subtitles and terms are:

(*a*) **Caesarean operation**

Caesarean operation

(*b*) **Without Caesarean operation**

Breech presentation
Cephalhematoma
Cephalic hemorrhage (at birth)
Cerebral compression (injury at birth)
hemorrhage (age under 1 month)
pressure (injury at birth)
Compression during birth (injury at birth)
of brain (injury at birth)
umbilical cord
Delayed confinement
delivery
Difficult labor
Dystocia
Foot presentation
Forced delivery
Forceps operation
Hematoma
Injury at birth
in delivery
Instrumental delivery
Malpresentation
Placenta praevia
Podalic version
Prolapse of funis
umbilical cord
Prolonged labor
Protracted dry birth
labor
Rupture of brain (incident to birth)
Strangulation of umbilical cord
Transverse presentation
Vectis (use of)
Version

162. Other diseases peculiar to early infancy

Note—This title includes only deaths of infants under 3 months of age.

The approved subtitles and terms are:

(*a*) **Atelectasis**

Atelectasis
  neonatorum
  of new-born

(*b*) **Icterus of the new-born**

Acute catarrhal hepatitis
  jaundice
Congenital cirrhosis of liver
  icterus
Hematogenous icterus
  jaundice
Hemorrhagic icterus
  jaundice
Hepatitis of new-born
Icterus neonatorum
  of new-born
Jaundice of new-born

(*c*) **Sclerema**

Congenital sclerema
Sclerema
  neonatorum

(*d*) **Others under this title**

Asphyxia neonatorum
Cellulitis of umbilicus
Gangrene of umbilical cord
Hemorrhage of funis
  navel
  new-born
  umbilical cord
  umbilicus
Infected navel
  umbilicus
Infectious omphalitis
Melena neonatorum
Omphalitis
Pemphigus neonatorum
  of infants
Phlebitis of umbilicus
Postnatal asphyxia
Pulmonary hemorrhage (−1m)
Septic infection of umbilicus
Septicemia of umbilicus
  from navel

The Committee recommends the transfer of Pemphigus neonatorum and Pemphigus of infants from title no. 154 to this title.

XVI. SENILITY

163. Senility

The approved subtitles and terms are:

(*a*) **Senility accompanied by dementia or other forms of mental alienation (over 70)**

Dementia of old age
Senile dementia
  insanity
Senile paresis
  psychosis
  melancholia

(*b*) **Senility, others of this class**

Morbus senilis
Old age
Senility

The Committee recommends that all reports of deaths under 70 years of age which would be classified under this title heading be queried for the disease causing death. These reports are too often used on death certificates of elderly persons, whose deaths should have been reported as due to diseases of various organs.

Deaths from senility accompanied by dementia, in persons under 70 years of age, should be classified under title no. 85.

The Committee recommends that this title be subdivided into (*a*) Senility accompanied by dementia or by other forms of mental alienation (over 70); and (*b*) Senility—others of this class. The approved terms under subtitle (*a*) are: Dementia of old age, Senile dementia, Senile insanity, Senile paresis, Senile psychosis, Senile melancholia. Under subtitle (*b*) the approved terms are: Morbus senilis, Old age, and Senility.

The Committee declares its reason for recommending that these subtitles be established to be as follows: It believes that many of the deaths reported from hospitals for the insane as due to senile dementia, senile insanity, etc., are more

properly chargeable to title no. 85 (dementia praecox and other psychoses) than they are to senility. These, however, are so numerous that the transfer of all such cases to title no. 85 would make a very great difference in the number of deaths classified under both titles 163 and 85 and a corresponding difference in the published death rates. The subdivisions as now recommended will enable anyone who so desires to ascertain the number of deaths reported from senility accompanied by mental alienation.

XVII. VIOLENT AND ACCIDENTAL DEATHS

NOTE.—Under Suicide should be classed only those deaths in which suicide or attempt at suicide is certified.

164. Suicide by solid or liquid poisons or by absorption of corrosive substances

The approved terms are:

Poisoning (suicidal)

Suicide by poison (any solid or liquid)

165. Suicide by poisonous gas

The approved terms are:

Suicide by asphyxia (any gas or vapor)
- carbon monoxide
- chloroform (vapor)
- gas (any gas)
- illuminating gas

Suicide by inhalation of gas (any gas or vapor)
- suffocation (any gas or vapor)
- vapor (any vapor)

166. Suicide by hanging or strangulation

The approved terms are:

Suicide by hanging

Suicide by strangulation

167. Suicide by drowning

The approved terms are:

Suicide by drowning

Suicide by submersion

168. Suicide by firearms

The approved terms are:

Suicide by firearms

Suicide by shooting

169. Suicide by cutting or piercing instruments

The approved terms are:

Suicide by cutting artery
- blood-vessel
- instrument

Suicide by cutting throat
- piercing instrument

170. Suicide by jumping from high places

The approved term is:

Suicide by jumping from high place

171. Suicide by crushing

The approved terms are:

Suicide by crushing
- jumping before train

Suicide by jumping before other vehicles

172. Suicide by other means

The approved terms are:

Suicide (unqualified)
- by burns
- dynamite

Suicide by fire
- scalds

173. Infanticide (murder of infants less than 1 year of age)

NOTE.—This title may be omitted when homicides under 1 year of age are shown separately under titles 174–176.

174. Homicide by firearms

The approved terms are:

Assassination by firearms
Gunshot (homicidal)
Homicide by firearms
gunshot
Shooting (homicidal)
Shot (homicidal)
by burglar
in duel
Wound by firearms (homicidal)

175. Homicide by cutting or piercing instruments

The approved terms are:

Assassination by cutting or piercing instrument
Cut (homicidal)
Homicide by cutting instrument
piercing instrument
Knife cut (homicidal)
stab
Wound by cutting instrument (homicidal)

176. Homicide by other means

The approved subtitles and terms are:

(*a*) **Criminal abortion (mother)**

Criminal abortion (mother)

(*b*) **Others of this class**

Assassination (without further explanation)
Assault by maniac
Bite of human being
Drowning (homicidal)
Duel
Homicidal poisoning
strangulation
wound
Homicide (unqualified)
Incendiarism
Lynching
Manslaughter
Murder (unqualified)
Throwing of sulphuric acid
vitriol
Traumatism (homicidal)
Wound (homicidal)

The Committee recommends that this title be subdivided; that "Criminal abortion (mother)" be subtitle (*a*) and that the above list of terms be made inclusions under subtitle (*b*) with the caption "Others of this class."

177. Attack by venomous animals

The approved terms are:

Bite of insect
serpent
venomous serpent
viper
Snake-bite
Sting of insect
Venom of animal
centipede
scorpion
Venomous bite
sting

178. Poisoning by food

The approved terms are:

Botulism
Cheese poisoning
Egg-albumen poisoning
Fish poisoning
Food poisoning (unqualified)
Meat poisoning
Milk poisoning
Potato poisoning
Sausage poisoning
Shellfish poisoning

179. Accidental absorption of poisonous gas

The approved terms are:

Acetylene poisoning
Acute etherism
Ammonia poisoning
Amyl nitrite poisoning
Anesthetic
for operation
Asphyxia by fumes
gas (accidental; specify gas)
Asphyxia by smoke (conflagration excepted)
stove gas
vapor
Bisulphide of carbon poisoning
Chloroform poisoning (vapor)

A footnote should follow this title stating that it does not include deaths in burning buildings.

The Committee also recommends that all reports that do not specify that the poisoning was accidental be queried by registration and compiling offices to determine whether such cases are not properly chargeable to suicide or homicide.

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of the decedent.

180. Other acute accidental poisonings (gas excepted)

The approved terms are:

Accidental poisoning (specify nature)
Acute poisoning (specify nature)
Anaphylaxis

Serum intoxication
    poisoning
Wood alcohol poisoning

All returns which do not specify that the poisoning was accidental should be queried by registration and compiling offices. When this is done many reports will be found to represent cases that are properly chargeable to suicide or homicide.

A footnote should be added to the effect that this title does not include septic poisoning.

181. Conflagration

The approved terms are:

Conflagration (to include all injuries of whatsoever nature resulting therefrom)
Crushed at fire (conflagration)
Forest fire

Inhalation of smoke (burning building)
Jumped from burning building
Prairie fire
Suffocation (burning building)

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of the decedent.

182. Accidental burns (conflagration excepted)

The approved terms are:

Burn (conflagration excepted, of any organ or part)
  by boiling liquid
      water
    coal oil
    corrosive substance
    fall with lighted lamp
    fire
    gasoline
    kerosene
    molten metal
    petroleum
    steam
    sulphuric acid
    vitriol

Dermatitis actinica
    ambustionis
Effects of corrosives
    radium
    x-ray
Explosion of gasoline
    kerosene
    lamp
Lamp accident
Scald (of any part of body)
    by steam
Sunburn

The Committee recommends that all reports of "burns" without further qualification be queried to determine whether they were received in burning buildings or otherwise.

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of the decedent.

183. Accidental mechanical suffocation

The approved terms are:

Asphyxiation by falling earth
Cave in (unqualified)
Overlaid

Suffocation (unqualified)
    by abnormal atmospheric pressure
    bed clothes

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of the decedent.

184. Accidental drowning

The approved terms are:

Accidental drowning
    submersion
Asphyxia by drowning
Drowning (unqualified)

Found drowned (open verdict)
Lost at sea
Suffocation by drowning
    submersion

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of the decedent.

185. Accidental traumatism by firearms (wounds of war excepted)

The approved terms are:

Accidental wound by firearms (of any part of body)	Shooting
Firearms	Shot
Gunshot	Traumatism by firearms
Pistol wound	Wound by firearms

The Committee recommends that all reports which do not specify that the traumatism was accidental be queried by registration and compiling offices to determine whether death was accidental, suicidal, or homicidal.

186. Accidental traumatism by cutting or piercing instruments (wounds of war excepted)

The approved terms are:

Circumcision	Sterilization
Cut (of any part of body)	Traumatism by cutting instrument
by glass	piercing instrument
Incised wound (of any part of body)	Wound by cutting instrument (of any part of body)
Knife cut	Wound by piercing instrument (of any part of body)
stab (accident)	
Punctured wound (of any part of body)	
Stab wound (of any part of body, accidental)	

The Committee recommends that registration and compiling offices query all reports which do not specify definitely that the traumatism was accidental, to determine whether death was actually due to an accident, suicide, or homicide.

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of the decedent.

The Committee recommends that the term Sterilization be added.

187. Accidental traumatism by fall, crushing, landslide

The approved subtitle and terms are:

(*a*) **Accidental traumatism by fall**

Fall (accidental or unqualified)	Jumping from window (in delirium of disease)
down stairs	Traumatism by fall
Injury by diving	
from fall	

(*b*) **Accidental traumatism by crushing, landslide**

Crushed by falling earth	Traumatism by crushing
Crushing	landslide
Landslide	

The Committee recommends that a footnote be added stating that this title does not include accidents connected with traffic, in burning buildings, or in mines and quarries, and that a separate tabulation be made of all cases in which death was dependent upon the occupation of decedent.

188. Cataclysm (all deaths attributed to a cataclysm regardless of their nature)

The approved terms are:

Earthquake	Killed in cyclone

The Committee recommends that this title be abolished and that the terms be transferred to title 195, subtitle (*b*).

189. Injuries by animals

The approved terms are:

Bite of (any animal)	Injury by any animal
dog	Kick (by horse or other animal)
Gored	Traumatism by horses

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of decedent.

190. Hunger and thirst

The approved terms are:

Deprivation of water
Hunger
Inanition (starvation)
Insufficient nourishment
Privation
Starvation
Thirst

The words "starvation" and "inanition" are sometimes used in the United States and Canada to denote exhaustion from defective nourishment due to disease or to senile or congenital debility. Only where death was caused by actual privation should assignment be made to title no. 190

191. Excessive cold

The approved terms are:

Effects of cold (temperature)
Exposure to cold
Freezing
Frostbite
Frozen

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of decedent.

192. Excessive heat

The approved terms are:

Effects of heat
Excessive heat
Heat apoplexy
cramps
exhaustion
prostration
Heat stroke
Insolation
Overheated
Sun stroke
Thermic fever

The Committee recommends that a separate tabulation be made of all cases in which death was dependent upon the occupation of decedent.

193. Lightning

The approved terms are:

Lightning
Thunderbolt

194. Accidents due to electric currents

The approved terms are:

Accidental electric shock
electrocution
Burn by electricity
Electric concussion
Electric shock
Electricity (lightning excepted)
Injury by electric shock

195. Other accidents

The approved terms are:

(*a*) **By foreign bodies (sight, organ, or orifice to be specified)**

(*b*) **Others under this title**

Desertion (new-born)
Explosion
Football accident
Lack of care
Rupture of uterus (nonpuerperal or unspecified)

See recommendation of the Committee under title no. 188.

NOTE.—This is the residual title for external causes. Many indefinite returns found here could be assigned elsewhere if the means of death and the character of violence (accidental, suicidal, or homicidal) were stated

196. Violent deaths of which the nature (accident, suicide, homicide) is unknown

NOTE.—Include under this title only deaths from "other external violence" when doubt is expressed as to whether accidental, suicidal, homicidal, or wounds of war.

197. Wounds of war

NOTE.—Include under this title all deaths of combatants due to violence even if accidental.

198. Execution of civilians by belligerent armies

199. Legal executions

The approved terms are:

Capital punishment	Execution
Electrocution (legal execution)	Hanging (legal execution)

XVIII. ILL-DEFINED CAUSES OF DEATH

NOTE.—The following titles (200 and 201) relate chiefly to diseases not well-defined by the physician, either because his means of information were not sufficient, because the disease was lacking in distinctive features, or, perhaps, because he failed to make a complete diagnosis. There are also included (under title no 201) some cases in which the cause of death is entirely unspecified or reported as "Unknown", sometimes on account of the absence of medical attendance. Registrars should not accept any returns compiled under these titles if it is possible to secure more definite statements.

200. Sudden death

Under this title are listed a number of terms all of which are indefinite and unsatisfactory as statements of the primary cause of death.

The Committee is advised that the Bureau of the Census and many State and municipal registration offices are making determined efforts to secure more definite data when such returns are received, and desires to express its approval of this practice. It realizes that until all such reports are eliminated they must be classified somewhere. This, in the opinion of the Committee, is the sole reason for giving this title a place in the International List.

201. Cause of death not specified or ill-defined

(*a*) **Ill-defined**

(*b*) **Not specified or unknown**

The Committee approves the subdivision of this title as in the Census Manual into (*a*) Ill-defined and (*b*) Not specified or unknown.

The inclusions constitute a mass of ill-defined and unsatisfactory terms. None of these could receive the approval of the Committee as terms recommended for use in the United States or Canada. All of them, however, in view of their very indefiniteness, the Committee realizes must be included under this heading when they are encountered and when no more definite information can be secured on inquiry.

The Committee is advised that the Bureau of the Census and many State and municipal registration offices are making determined efforts to secure more definite data when such returns are received, and desires to express its approval of this practice. It realizes that until all such reports are eliminated they must be classified somewhere, and that, therefore, under present conditions, this title must remain in the list.

SUPPLEMENT FOR GROUP XVII, VIOLENT AND ACCIDENTAL DEATHS

Cross Classification of Deaths From Accidents

Use the following punch number designations:

202. Accidents in mines and quarries
203. Accidents from agricultural machinery
204. Elevator accidents
205. Accidents from machinery used for recreation
206. Other machinery accidents
207. Railroad and automobile collisions
208. Other railroad accidents
209. Street car and automobile collisions
210. Other street car accidents
211. Automobile accidents (primary)
212. Motorcycle accidents
213. Other land transportation accidents
214. Water transportation accidents
215. Air transportation accidents

With the foregoing list use the following subheadings:

(*a*) Accidental absorption of poisonous gas
(*b*) Accidental burns (conflagration excepted)
(*c*) Accidental mechanical suffocation
(*d*) Accidental drowning
(*e*) Accidental traumatism by cutting or piercing instruments
(*f*) Accidental traumatism by fall
(*g*) Accidental traumatism by crushing, landslide
(*h*) Accidents due to electric currents.
(*k*) Foreign bodies
(*m*) Other accidents

Illustrations.—Absorption of gas in a mine, classify as 202a.—Accidental burns in a mine, classify as 202b.—Crushed by a railroad train, classify as 208g, etc.

In making the first tabulation include under Title 179, Accidental absorption of poisonous gas, cards punched 179 and also cards punched 202a to 215a, inclusive. Under Title 182, Accidental burns (conflagration excepted), include cards punched 182 and also cards punched 202b to 215b, etc.

To make supplemental tabulation for accidents in mines and quarries, combine cards punched 202a to 202m, inclusive. For Accidents from agricultural machinery, combine cards punched 203a to 203m, inclusive, etc.

NOTE.—The numbers used here are not included in the International List, but are used for convenience in cross-classifying deaths from accidents. See page 159, Manual of the International List of Causes of Death, Fourth Revision.

202. Accidental traumatism in mines and quarries

NOTE.—The exact nature of the accident and the particular employment of all persons killed in or about the mine or quarry should be stated; also the kind of mine.

The approved terms are:

Accident in mine
  quarry
Asphyxia by gas in mine
Choke damp (unqualified)
Explosion of fire damp
Fall in abandoned quarry
  pit (mine or quarry)
  shaft (mine)
 of coal (mine)
  stone (quarry)
Injury by mining machinery
  wagon in mine
  in mine
  quarry
Mining accident
Traumatism in mine
  quarry

The Committee suggests that when it is desired to study the mortality from mining accidents in greater refinement than provided for above, the following subdivisions be used:

(*a*) Injuries by falls
(*b*) Injuries by falling bodies
(*c*) Explosions, asphyxia, and suffocation
(*d*) Injuries by mining machinery or mine vehicles
(*e*) All other accidents in mines

203. Accidents from agricultural machinery

The approved terms are:

Fall from cultivator
Mowing machine accident

204. Elevator accidents

The approved terms are:

Elevator accident
Fall down elevator shaft

205. Accidents from machinery used for recreation

The approved terms are:

Dip-the-dip accident
Merry-go-round accident
Roller coaster accident
Scenic railroad accident

206. Other machinery accidents

The approved terms are:

Accidental fall of machinery	Logging car accident (unqualified)
Caught in shafting	Pile driver accident
Crushed by traveling crane	Steam roller accident
Donkey engine accident	Traction engine accident
Explosion of boiler	Tractor accident (not agricultural)
Injury by machinery (specify use)	Traumatism by machinery

207. Railroad and automobile collisions

The approved terms are:

Railroad and automobile collisions (all accidents resulting from)

208. Other railroad accidents

The approved terms are:

Crushing by bumpers	Killed on railroad
Derailment (train)	Railroad accident
Electric speeder (accident)	collision
Explosion of boiler (locomotive)	Steam railroad accident
Fall from engine (railroad or unqualified)	Struck by railroad car or engine
steam car	Traumatism by railroad
	Turntable accident

The Committee recommends the addition of the terms: Struck by railroad car, or engine.

209. Street car and automobile collisions

The approved term is:

Street car and automobile collision (all accidents resulting from)

210. Other street car accidents

The approved terms are:

Electric railway accident	Struck by street car
Elevated railway accident	Subway accident
Fall from street car	Surface car accident
Interurban railway accident	Traumatism by electric railroad
Street car accident	street railroad
railway accident	Trolley accident

The Committee recommends the addition of the term: Struck by street car.

211. Automobile accidents

The approved terms are:

Automobile accident	Struck by automobile
Cranking automobile	Thrown from automobile
Explosion of gasoline tank (automobile)	Tractor accident (transportation)
Run over by automobile	Traumatism by automobile

The Committee recommends the addition of the terms: Struck by automobile, Run over by automobile, and Thrown from automobile.

212. Motorcycle accidents

The approved term is:

Motorcycle accident

213. Other land transportation accidents

The approved terms are:

Bicycle accident	Injury by vehicle (not stated)
injury	Run over by horse
Coasting accident	Runaway accident
Cycle accident	Sled accident
Fall from baby carriage	Thrown from horse
horse	Traumatism by vehicle (carriage, wagon, bicycle, etc.)
Fallen on by horse	

214. Water transportation accidents

The approved terms are:

Explosion of boiler (steamboat)
Fall in ship or boat into hold (ship, etc.)

215. Air transportation accidents

The approved terms are:

Aeroplane accident
Balloon accident
Fall from or with aeroplane
balloon
Fall from or with parachute
Traumatism by aeroplane
balloon

The Committee recommends the addition of the term Balloon accident.

DEATHS DURING WEEK ENDED AUG. 24, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 24, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,074	6,644
Deaths per 1,000 population, annual basis	9.9	9.3
Deaths under 1 year of age	500	481
Deaths under 1 year of age per 1,000 estimated live births	46	45
Deaths per 1,000 population, annual basis, first 34 weeks of year	11.7	11.7
Data from industrial insurance companies:		
Policies in force	67,486,280	67,580,638
Number of death claims	10,830	11,126
Death claims per 1,000 policies in force, annual rate	8.4	8.6
Death claims per 1,000 policies, first 34 weeks of year, annual rate	10.0	10.2

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Aug. 31, 1935, and Sept. 1, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 31, 1935, and Sept. 1, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934
New England States:								
Maine					9		0	0
New Hampshire							0	1
Vermont					6		0	0
Massachusetts	4	13			21	10	1	1
Rhode Island					5	7	0	0
Connecticut	2			1	5	10	3	0
Middle Atlantic States:								
New York	19	14	[1] 6	[1] 2	127	19	14	2
New Jersey	4	7	1	14	14	16	3	1
Pennsylvania	29	19			83	93	4	3
East North Central States:								
Ohio	9	22	34	19	27	39	3	4
Indiana	16	9	26	12	2		0	2
Illinois	22	16	4	19	15	48	5	5
Michigan		9	2		27	19	0	4
Wisconsin	6	7	16	22	63	41	1	1
West North Central States:								
Minnesota	1	5	1	1	2	20	2	0
Iowa	5	4	1		2	1	0	0
Missouri	25	26	18	14	6	10	2	2
North Dakota		3			1	10	1	1
South Dakota	1	3				12	0	0
Nebraska	2	1			6		3	3
Kansas [3]	1	10		2	8	8	1	0
South Atlantic States:								
Delaware	1	1		5	2	1	2	0
Maryland [3] [4]	3	6	1	91	9	2	3	0
District of Columbia	8	10		2			2	0
Virginia	24	27			1	15	3	0
West Virginia	22	8	51	37	17	15	3	0
North Carolina [4] [5]	36	29	4			11	2	0
South Carolina	8	3	51	76		1	0	0
Georgia [4]	16	11					2	0
Florida	19	8			1	53	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 31, 1935, and Sept. 1, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934
East South Central States:								
Kentucky	38	17	3		9	9	2	1
Tennessee	24	15	2	6	1	13	0	1
Alabama [4]	21	55	39	3	13	34	0	0
Mississippi [3]	21	18					0	0
West South Central States:								
Arkansas	12	2	1	3			0	1
Louisiana [4]	24	21	20	4	8	9	1	0
Oklahoma [6]	8	2	7	3			0	0
Texas [4]	58	37	12	27	29	37	0	0
Mountain States:								
Montana	1	1	1		4	4	0	0
Idaho						1	0	1
Wyoming		1			11	2	0	0
Colorado	9	6			1	9	0	1
New Mexico	1	2		1			0	1
Arizona	2	2	6	3	1	1	0	0
Utah [3]						2	0	0
Pacific States:								
Washington	1				5	6	2	0
Oregon	2	2		11	69	5	1	0
California	24	11	3	4	82	16	5	4
Total	529	463	310	382	692	609	71	40
First 35 weeks of year	10,098	21,369	104,679	49,950	696,904	669,686	4,292	1,670

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934
New England States:								
Maine	16	2	13	7	0	0	4	0
New Hampshire	6	0	2	5	0	0	1	0
Vermont	2	0	0	1	0	0	0	1
Massachusetts	166	2	38	31	0	0	2	8
Rhode Island	58	0	1	8	0	0	0	2
Connecticut	39	2	13	4	0	0	3	6
Middle Atlantic States:								
New York	460	14	80	58	0	0	29	31
New Jersey	35	4	10	18	0	0	3	6
Pennsylvania	13	13	65	75	0	0	23	25
East North Central States:								
Ohio	14	23	49	104	0	0	49	37
Indiana	2	2	29	16	0	0	18	16
Illinois	19	17	93	101	0	0	28	59
Michigan	108	26	33	54	7	2	18	16
Wisconsin	4	8	55	13	1	3	1	5
West North Central States:								
Minnesota	5	8	35	11	0	1	8	3
Iowa	4	2	25	11	0	0	3	12
Missouri	0	0	19	24	0	0	19	55
North Dakota	1	2	4	11	0	0	1	0
South Dakota	0	2	6	7	3	0	2	2
Nebraska	0	0	2	2	2	0	0	1
Kansas [2]	2	4	10	15	1	0	15	12
South Atlantic States:								
Delaware	2	0	5	4	0	0	7	1
Maryland [3 4]	5	0	17	14	0	0	26	11
District of Columbia	5	0	4	4	0	0	5	1
Virginia	31	6	23	22	0	0	36	27
West Virginia	3	7	47	21	0	0	18	39
North Carolina [4 5]	9	3	25	35	0	0	19	16

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Aug. 31, 1935, and Sept. 1, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934	Week ended Aug. 31, 1935	Week ended Sept. 1, 1934
South Atlantic States—Continued.								
South Carolina	1	0	3	2	1	0	24	8
Georgia [4]	0	1	6	4	0	0	45	34
Florida	0	0	3	2	0	0	0	3
East South Central States:								
Kentucky	36	4	40	20	0	0	70	44
Tennessee	1	1	16	11	0	1	35	45
Alabama [4]	4	4	11	11	0	0	16	18
Mississippi [3]	0	0	14	12	0	0	9	10
West South Central States:								
Arkansas	0	1	8	2	0	0	9	8
Louisiana [4]	1	0	10	10	0	0	19	14
Oklahoma [6]	0	0	4	6	0	0	41	26
Texas [4]	9	3	21	17	4	1	59	27
Mountain States:								
Montana	0	57	5	2	0	1	7	6
Idaho	0	7	1	3	0	0	2	1
Wyoming	0	0	6	----	0	0	0	1
Colorado	0	2	11	11	0	1	6	21
New Mexico	0	0	4	1	0	0	14	7
Arizona	1	11	1	3	0	0	2	8
Utah [3]	0	0	14	8	0	0	2	2
Pacific States:								
Washington	1	50	9	7	3	3	4	1
Oregon	1	1	16	6	0	0	8	7
California	24	44	49	48	5	0	11	10
Total	1,088	333	955	802	27	13	721	703
First 35 weeks of year	5,417	4,687	182,211	149,907	5,368	3,783	10,721	12,774

[1] New York City only.
[2] Epidemic encephalitis, week ended Aug. 31, 1935, Kansas, 1 case.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended Aug. 31, 1935, 45 cases as follows: Maryland, 1; North Carolina, 2; Georgia, 25; Alabama, 9; Louisiana, 1; Texas, 7.
[5] Rocky Mountain spotted fever, week ended Aug. 31, 1935, North Carolina, 2 cases.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April 1935										
Hawaii Territory	1	7	4	-------	11	------	1	3	0	11
May 1935										
New Hampshire	-------	2	-------	-------	-------	------	1	59	0	0
Wisconsin	6	10	136	-------	7,854	------	4	2,307	57	3
June 1935										
Nevada	2	0	2	-------	219	------	1	15	0	1
New Hampshire	-------	0	0	-------	-------	------	1	27	0	0
Puerto Rico	-------	64	24	1,081	52	------	0	-------	0	58
Tennessee	15	29	82	243	136	28	2	68	0	91
Wisconsin	8	11	94	-------	5,631	------	4	1,150	34	7
July 1935										
Alabama	4	82	40	1,108	63	89	15	42	0	107
Mississippi	5	33	361	12,492	72	502	1	34	0	75

April 1935

Hawaii Territory:	Cases
Chicken pox	90
Leprosy	3
Mumps	48
Paratyphoid fever	1
Typhus fever	1
Whooping cough	72

May 1935

Wisconsin:	Cases
Chicken pox	,530
Epidemic encephalitis	3
German measles	9,694
Mumps	2,424
Septic sore throat	20
Trachoma	8
Undulant fever	8
Whooping cough	1,013

June 1935

	Cases
Chicken pox:	
Nevada	3
Puerto Rico	74
Tennessee	60
Wisconsin	1,034
Dysentery:	
Puerto Rico	23
Tennessee	96
Epidemic encephalitis:	
Wisconsin	3
Filariasis:	
Puerto Rico	3
Framboesia:	
Puerto Rico	1
German measles:	
Tennessee	9
Wisconsin	4,155
Hookworm disease:	
Tennessee	1

June 1935—Continued

	Cases
Impetigo contagiosa:	
Tennessee	5
Leprosy:	
Puerto Rico	2
Mumps:	
Puerto Rico	51
Tennessee	83
Wisconsin	1,419
Ophthalmia neonatorum:	
Puerto Rico	5
Tennessee	2
Wisconsin	1
Paratyphoid fever:	
Tennessee	3
Puerperal septicemia:	
Puerto Rico	7
Rocky Mountain spotted fever:	
Nevada	4
Septic sore throat:	
Tennessee	2
Wisconsin	19
Tetanus:	
Puerto Rico	9
Tennessee	2
Tetanus, infantile:	
Puerto Rico	8
Trachoma:	
Puerto Rico	3
Tennessee	28
Tularaemia:	
Tennessee	1
Wisconsin	1
Undulant fever:	
Wisconsin	3
Vincent's infection:	
Tennessee	8
Whooping cough:	
Nevada	5
Puerto Rico	182
Tennessee	314
Wisconsin	921

July 1935

	Cases
Chicken pox:	
Alabama	9
Mississippi	172
Dengue:	
Alabama	63
Mississippi	34
Dysentery:	
Alabama (amoebic)	3
Mississippi (bacillary)	813
German measles:	
Alabama	6
Hookworm disease:	
Mississippi	389
Mumps:	
Alabama	30
Mississippi	298
Ophthalmia neonatorum:	
Alabama	4
Puerperal septicemia:	
Mississippi	13
Rabies in animals:	
Alabama	74
Mississippi	4
Rocky Mountain spotted fever:	
Alabama	1
Tetanus:	
Alabama	8
Trachoma:	
Mississippi	3
Tularaemia:	
Alabama	1
Typhus fever:	
Alabama	44
Undulant fever:	
Alabama	10
Whooping cough:	
Alabama	87
Mississippi	576

WEEKLY REPORTS FROM CITIES

City reports for week ended Aug. 24, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria, cases	Influenza, Cases	Influenza, Deaths	Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
Maine:											
Portland	0		0	0	0	0	0	0	0	0	20
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	13
Nashua	0			0		0	0		0	0	
Vermont:											
Barre											
Burlington	0		0	0	0	0	0	0	0	0	7
Rutland	0		0	0	0	0	0	0	0	1	7
Massachusetts:											
Boston	2		0	7	14	20	0	11	0	16	
Fall River	0		0	0	2	2	0	0	0	3	24
Springfield	1		0	0	0	0	0	2	0	1	23
Worcester	0		0	0	1	4	0	4	0	2	37
Rhode Island:											
Pawtucket											
Providence	2	2	0	0	0	0	0	2	1	10	47
Connecticut:											
Bridgeport	1		0	0	2	0	0	1	0	0	21
Hartford	1		0	0	0	1	0	3	0	5	39
New Haven	0		0	1	1	0	0	1	0	2	44
New York:											
Buffalo	1		0	3	11	5	0	4	1	11	114
New York	6		5	64	55	23	0	73	10	117	1,297
Rochester	0		0	4	1	1	0	1	3	9	60
Syracuse	0		0	3	1	0	0	2	1	33	35

City reports for week ended Aug. 24, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
		Cases	Deaths								
New Jersey:											
Camden	0	-	0	0	0	0	0	1	2	3	25
Newark	0	1	0	4	1	2	0	1	2	43	62
Trenton	0	-	0	0	0	2	0	5	1	0	31
Pennsylvania:											
Philadelphia	2	-	1	5	18	15	0	27	12	99	435
Pittsburgh	0	1	0	0	2	17	0	6	0	35	145
Reading	0	-	0	2	0	0	0	1	0	0	26
Scranton	0	-	-	0	-	0	0	-	0	8	-
Ohio:											
Cincinnati	-	-	-	-	-	-	-	-	-	-	-
Cleveland	2	15	0	11	7	6	0	12	11	61	176
Columbus	0	-	0	0	4	3	0	0	0	6	60
Toledo	0	-	0	1	3	3	0	9	0	10	60
Indiana:											
Anderson	0	-	0	0	0	0	0	1	0	3	10
Fort Wayne	2	-	0	0	1	2	0	1	0	0	24
Indianapolis	3	-	0	1	6	4	0	6	0	9	85
South Bend	-	-	-	-	-	-	-	-	-	-	-
Terre Haute	0	-	0	0	0	0	0	0	1	0	17
Illinois:											
Alton	1	-	0	0	0	0	0	0	0	0	4
Chicago	6	-	0	20	27	31	0	34	0	114	556
Elgin	0	-	0	0	1	0	0	0	0	2	7
Moline	0	-	0	0	1	0	0	0	0	0	8
Springfield	1	-	0	0	1	0	0	1	0	5	20
Michigan:											
Detroit	1	2	0	8	14	3	0	14	4	150	208
Flint	1	-	0	0	0	3	0	0	1	14	18
Grand Rapids	0	-	0	1	1	3	0	2	0	10	28
Wisconsin:											
Kenosha	0		0	0	0	0	0	0	0	3	11
Milwaukee	0	2	2	13	2	7	0	5	0	76	84
Racine	0	-	0	1	0	3	0	0	0	15	13
Superior	0	-	0	0	1	1	0	0	0	5	17
Minnesota:											
Duluth	0	-	0	0	1	1	0	1	8	5	24
Minneapolis	0	-	0	0	6	6	0	2	7	0	76
St. Paul	0	-	0	0	3	2	0	4	0	6	52
Iowa:											
Cedar Rapids	0	-	0	0	0	0	0	0	0	1	-
Des Moines	0	-	-	1	-	2	0	-	1	0	30
Sioux City	0	-	-	1	-	2	0	-	0	1	-
Waterloo	-	-	-	-	-	-	-	-	-	-	-
Missouri:											
Kansas City	0	-	0	0	5	2	0	3	2	2	94
St. Joseph	1	-	0	0	3	0	0	1	0	0	16
St. Louis	9	2	0	1	4	4	0	12	4	8	173
North Dakota:											
Fargo	0	-	0	0	0	0	0	0	0	0	4
Minot	0	-	0	0	0	1	0	0	0	1	3
South Dakota:											
Aberdeen	0	-	-	0	-	0	0	-	0	0	-
Nebraska:											
Omaha	5	-	0	0	1	0	1	0	0	0	52
Kansas:											
Topeka	0	-	0	0	1	1	0	0	1	0	32
Wichita	0	-	0	2	1	0	0	1	0	0	23
Delaware:											
Wilmington	0	-	0	0	2	0	0	1	0	0	21
Maryland:											
Baltimore	1	-	0	0	8	2	0	8	0	22	161
Cumberland	0	-	0	0	0	1	0	0	0	0	14
Frederick	0	-	0	0	0	0	0	0	0	0	-
District of Columbia:											
Washington	9	1	1	1	4	5	0	9	4	4	131
Virginia:											
Lynchburg	0	-	0	0	0	0	0	0	0	3	7
Norfolk	0	-	0	1	3	1	0	6	2	0	26
Richmond	1	-	0	0	1	1	0	4	0	0	46
Roanoke	0	-	0	1	0	1	0	0	0	0	18
West Virginia:											
Charleston	8	-	0	0	0	0	0	0	1	0	23
Huntington	2	-	-	0	-	1	0	-	0	2	-
Wheeling	0	-	0	1	0	4	0	0	0	2	19

City reports for week ended Aug. 24, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths all causes
		Cases	Deaths								
North Carolina:											
Gastonia	0	------	0	0	0	0	0	0	1	1	5
Wilmington	0	------	0	0	0	0	0	0	0	1	9
Winston-Salem	1	------	0	0	0	0	0	1	0	0	20
South Carolina:											
Charleston	0	2	0	0	0	0	0	4	0	3	15
Columbia	0	------	0	0	0	0	0	2	0	0	22
Florence	0	------	0	0	[illegible]	0	0	0	0	0	10
Greenville	0	------	0	0	0	0	0	0	1	0	11
Georgia:											
Atlanta	2	------	0	1	3	1	0	7	0	0	72
Brunswick	0	------	0	0	0	0	0	0	0	0	--------
Savannah	1	------	0	0	0	2	0	1	3	0	23
Florida:											
Miami	0	------	0	0	0	2	0	1	0	1	36
Tampa	1	------	0	4	1	0	0	1	0	0	21
Kentucky:											
Ashland	0	------	--------	1	--------	0	0	--------	0	3	--------
Covington	3	------	--------	0	--------	1	0	--------	0	0	--------
Lexington	1	------	0	0	0	0	0	2	0	0	19
Louisville	1	------	0	0	3	4	0	4	0	19	63
Tennessee:											
Knoxville	8	------	0	0	0	0	0	0	4	0	23
Memphis	1	------	1	0	0	1	0	7	9	10	77
Nashville	4	------	0	0	0	0	0	4	2	6	45
Alabama:											
Birmingham	1	------	0	0	2	0	0	3	2	0	51
Mobile	0	------	0	0	0	1	0	1	0	0	17
Montgomery	0	------	--------	0	--------	1	0	--------	0	0	--------
Arkansas:											
Fort Smith	--------	------	--------	--------	--------	--------	--------	--------	--------	--------	--------
Little Rock	0	------	0	0	1	0	0	0	0	0	--------
Louisiana:											
New Orleans	5	------	0	0	10	0	0	12	5	0	147
Shreveport	1	------	0	0	1	0	0	1	0	0	34
Oklahoma:											
Oklahoma City	0	8	0	2	1	3	0	0	4	0	30
Texas:											
Dallas	4	------	0	0	1	5	0	1	0	8	48
Fort Worth	3	------	0	0	4	1	0	2	0	5	34
Galveston	0	------	0	0	1	0	0	2	1	0	18
Houston	9	------	1	0	7	4	0	4	3	3	47
San Antonio	1	------	1	0	1	3	0	6	0	0	72
Montana:											
Billings	0	------	0	0	0	0	0	0	0	5	6
Great Falls	0	------	0	1	0	0	0	0	0	1	3
Helena	0	------	0	1	0	0	0	0	0	4	0
Missoula	0	------	0	0	0	0	0	0	0	0	5
Idaho:											
Boise	0	------	0	0	0	0	0	0	0	0	4
Colorado:											
Colorado Springs	0	------	0	0	0	0	0	1	1	3	11
Denver	6	------	0	5	3	10	0	4	5	1	71
Pueblo	0	------	0	0	0	0	0	0	1	5	11
New Mexico:											
Albuquerque	0	------	0	0	0	0	0	1	1	2	8
Utah:											
Salt Lake City	0	------	0	1	0	9	0	1	0	25	28
Nevada:											
Reno	0	------	0	0	1	0	0	0	0	0	4
Washington:											
Seattle	0	------	0	2	4	3	0	8	0	2	79
Spokane	0	------	0	0	3	1	0	1	0	0	33
Tacoma	--------	------	--------	--------	--------	--------	--------	--------	--------	--------	--------
Oregon:											
Portland	0	------	0	2	1	6	0	2	1	2	56
Salem	0	------	--------	1	--------	1	0	--------	0	2	--------
California:											
Los Angeles	10	6	0	13	8	13	0	16	3	17	258
Sacramento	2	------	0	0	1	4	0	0	0	0	21
San Francisco	0	------	0	30	4	2	0	6	0	13	150

City reports for week ended Aug. 24, 1935—Continued

State and city	Meningococcus Meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	0	0	51
Fall River	0	0	12
Rhode Island:			
Providence	0	0	12
Connecticut:			
Bridgeport	0	0	4
New Haven	0	0	5
New York:			
Buffalo	0	0	1
New York	5	6	251
New Jersey:			
Camden	0	0	2
Newark	0	0	1
Pennsylvania:			
Philadelphia	3	0	8
Pittsburgh	1	0	0
Ohio:			
Cleveland	2	2	4
Indiana:			
Indianapolis	0	0	1
Illinois:			
Chicago	4	1	1
Elgin	0	0	1
Michigan:			
Detroit	0	0	24
Flint	0	0	5
Grand Rapids	0	0	9
Wisconsin:			
Kenosha	0	0	1
Racine	0	0	1
Minnesota:			
Duluth	0	0	1
Iowa:			
Des Moines	1	0	2

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Missouri			
St. Louis	1	1	0
North Dakota:			
Fargo	0	0	1
South Dakota:			
Aberdeen	0	0	1
Nebraska:			
Omaha	0	1	0
Maryland:			
Baltimore	3	0	5
District of Columbia:			
Washington	6	0	7
Virginia:			
Norfolk	0	0	3
Richmond	0	0	2
Roanoke	0	0	2
North Carolina:			
Wilmington	0	0	1
Kentucky			
Louisville	0	0	18
Tennessee:			
Memphis	1	3	0
Arkansas:			
Little Rock	0	0	1
Louisiana:			
New Orleans	0	0	3
Texas:			
Fort Worth	0	0	2
San Antonio	0	1	0
New Mexico:			
Albuquerque	1	1	0
Washington:			
Seattle	0	0	1
California:			
Los Angeles	2	1	4
Sacramento	0	0	1

Epidemic encephalitis.—Cases: Cleveland, 1; Chicago, 1; Detroit, 1; Portland, Oreg., 1.
Pellagra.—Cases: Boston, 1; Savannah, 3; Tampa, 1; Memphis, 1; Los Angeles, 2; San Francisco, 1.
Typhus fever.—Cases: Wilmington, N. C., 1; Atlanta, 1; Savannah, 4.

FOREIGN AND INSULAR

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.– A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Aug. 30, 1935, pp 1194 1210. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Sept. 27, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Brazil.—According to information dated July 25, 1935, 4 cases of bubonic plague existed in the township of Vicosa, about 60 miles from Maceio, Alagoas State, Brazil, and 5 deaths from bubonic plague had occurred in Alagoas State since December 12, 1934. A report dated July 26, 1935, states that 10 cases of bubonic plague had occurred in Ceara State since the beginning of 1935, none of which proved fatal.

x

UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

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It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 SEPTEMBER 20, 1935 NO. 38

THE MATERNITY NURSING SERVICE OF A BICOUNTY HEALTH DEPARTMENT[1]

Brunswick-Greensville Health Administration Studies No. 5

Prepared by PEARL McIVER, *Associate Public Health Nursing Analyst, United S ates Public Health Service*

In a previous article [2] a general description was given of the public health nursing work in the Brunswick-Greensville health department. These two counties are located in southern Virginia, bordering on North Carolina. The population in 1930 was approximately 34,000, 60 percent of which was colored. The personnel of the health department consisted of one full-time medical health officer who directed the work, a sanitation officer who served both counties, two public health nurses (one assigned to each county), and a part-time office clerk.[3] A generalized public health nursing program, including maternal and infant hygiene, tuberculosis control, preschool and school hygiene, and communicable disease control, was carried on in each county. At the request of the State health department, the nurses were urged to devote about one-third of their time to maternal hygiene.

Seventy-five percent of all births occurring within the two counties were attended by colored midwives. About 90 percent of the colored and 40 percent of the white mothers were dependent upon the midwives for delivery care. Each midwife had been given a permit to practice by the State health department. Certain regulations as to their morals and personal health were prescribed, but no special training was required outside of assisting a physician with 1 or 2 deliveries. None of the midwives pursued any formal course of training in midwifery and many were unable to read or write.

There were no hospitals within the area; and while a few of the well-to-do women went to the hospitals in Richmond and elsewhere for delivery, a large majority of the maternity cases were cared for in their own homes and were dependent upon the midwives for delivery care.

[1] From the Office of Studies of Public Health Methods, in cooperation with the Division of Domestic Quarantine.

[2] McIver, Pearl: Public health nursing in a bicounty health department, Pub. Health Repts., vol. 50, p. 469. (Apr. 5, 1935.)

[3] For complete description of this area, see Mountin, Joseph W.: Effectiveness and economy of county health department practice, Pub. Health Repts., vol. 49, pp. 1234-5. (Oct. 19, 1934.)

Eighteen general practicing physicians resided within the area. A demonstration prenatal clinic was conducted by a clinician from the University of Virginia in cooperation with the State medical association for a short period during the study year. This clinic was organized as an educational project for the local practicing physicians and not as a service for the community. A few of the colored mothers, who were used as clinic material, did have the benefit of a prenatal examination, but the majority of the ante-partum cases did not have medical supervision.

According to the family survey,[4] which included a representative sample of the Brunswick-Greensville population, about 45 percent of the maternity cases consulted a physician for some purpose one or more times during pregnancy. However, two-thirds of those persons saw the physician but once and frequently the visit was made for an illness no way related to pregnancy.

The maternal mortality rate among the white mothers was 2.3 per thousand live births, as compared with 7.8 among the colored. The neonatal death rate (death rate of infants under 1 month of age per 1,000 live births) was 34 for the year in which the study was made.

CLASSES FOR MOTHERS

During the first few months of the study year the State health department conducted a correspondence course for mothers on maternity hygiene and child care. This course was later discontinued, but about 10 percent of the cases seen during those early months were enrolled for this work.

MIDWIFE SUPERVISION

Local responsibility for the supervision of the midwives was vested in the county health department, but most of the supervisory activities were delegated by the health officer to the public health nurses. In the case of a maternal death attended by a midwife or an applicant for a license, the matter was brought to the attention of the health officer. However, this happened rarely, as was shown by the records of the health officer. Over a period of 10 months,[5] he had but three such contacts with midwives.

According to the nursing records, there were 42 midwives in Brunswick County and 25 in Greensville County during the study year. Each midwife was notified by the State health department that she might expect the nurse to supervise her work and that she must report all of her prenatal cases to the local health department.

[4] Unpublished data collected in a study of 1,009 families in the health district.

[5] Unpublished data on the work of the health officer

The nurse's part in the supervision of midwives consisted mainly of class and individual instruction in their homes or at the health department offices. The State health department provided each nurse with a manual of instructions for the conduct of midwife classes. Eight lessons on ante-partum, delivery, and post-partum care were outlined and, in addition, a handbook of instructions was provided for the midwives who were able to read The midwife classes were open to others who might be interested, and frequently there were more visitors than midwives in attendance During the study year the Brunswick County nurse had 12 class sessions, with an average attendance of 12 midwives and 15 others; the Greensville County nurse had two sessions during the year, with an average attendance of 20 midwives and 5 others.

A total of 167 home visits was made to midwives in the interest of the maternity program. In addition, the midwives made 68 visits to the health department offices to confer with the nurses. The latter visits were usually for the purpose of reporting prenatal cases or to secure prenatal literature or infant's clothing for some of their patients. The midwives were required to have a regulation bag and certain minimum equipment as prescribed by the Bureau of Child Hygiene of the State health department. The bags were inspected by the local nurses at intervals. Sometimes the nurses accompanied the midwives to the homes of their patients, but this type of supervision was not given very frequently.

EXTENT OF MATERNITY NURSING SERVICE

Of the 1,114 individuals who were visited by the public health nurses for all purposes during the study year, 234, or 21 percent, of them were maternity cases. Of these maternity cases, 51, or approximately 22 percent, were visited during both the ante-partum and post-partum periods;[6] 138, or 59 percent, were visited during the ante-partum period only; and 45, or 19 percent, were not seen until after delivery. Thus there were 189 ante-partum and 96 post-partum cases registered with the public health nurses in the two counties during the study year.

During the study year, 1,036 live- and stillbirths were reported to the State Bureau of Vital Statistics from these two counties. If the recorded live- and stillbirths occurring within the area be considered as representing approximately the maternity population, it will be seen that about 22 percent of the maternity cases received one or more visits from the public health nurses during the study year.

In Rutherford County, Tenn., Mustard [7] reported that the nurses gave advice and service to 29 percent of all of the maternity cases

[6] Post partum period comprised the first 6 weeks following delivery

[7] Mustard, H. S. Rural health progress, p. 100 Commonwealth Fund, New York City, 1930.

occurring within the county annually over a 5-year period. In Cattaraugus County, New York, Randall[8] estimated that 29 percent of the maternity cases there received some service from the public health nurses during the year in which her study was made. The number of maternity cases reached by the Brunswick-Greensville nurses compares very favorably, since there were but two nurses to a population of about 34,000, while in Rutherford and Cattaraugus counties, there was about one nurse to every 6,000 of the population. However, the number of visits per case was considerably less in the Brunswick-Greensville area. The Brunswick-Greensville nurses made a total of 419 visits to the 234 maternity cases, or an average of 1.8 visits per case. The Cattaraugus and Rutherford county nurses averaged about four visits per case.

By comparing the extent of the maternity work in Brunswick-Greensville counties with the extent of the maternity work in other county health departments having a similar set-up, it is possible to estimate the relative amount of emphasis which was placed on maternity work in these two counties. Eight counties of a somewhat similar make-up were selected from the group of counties which were surveyed by the American Public Health Association[9] for comparison. It is recognized that there may be some difference in definition of service among the several counties; nevertheless, from the data presented in table 1, it would appear that the Brunswick County nurse reached more than three times as many ante-partum cases as the average for the eight counties selected for comparison and almost twice as many post-partum cases. The Greensville County nurse visited almost twice as many ante-partum cases and about the same number of post-partum cases as the average for the eight counties selected. Several of the counties selected for comparison had a higher average number of visits per case, but only two counties had a higher total number of ante-partum visits than did Brunswick and Greensville Counties. These figures would indicate that the maternity service of the Brunswick-Greensville Health Department received more emphasis than did the maternity service in the average county health department. The State health department recommended that nurses devote one-third of their time to maternity and infancy work. It is quite probable that the Brunswick-Greensville nurses attempted to meet these recommendations, and thus the program was perhaps influenced in favor of maternity work.

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[8] Randall, M Maternity service by rural public health nurses Milbank Quarterly, July 1931, p 105

[9] Freeman, Allen A study of rural health practice The Commonwealth Fund, New York City, 1933

TABLE 1.—*Visits to maternity cases in eight of the counties included in the American Public Health Association survey*[1] *as compared with Brunswick and Greensville Counties*

County and State	Total births	Ante-partum cases	Ante-partum nursing visits	Average number of visits ante-partum cases	Post-partum cases	Post-partum nursing visits	Average number of visits post-partum cases
Limestone County, Ala	987	39	80	2.1	68	53	0.8
Talbot County, Md	393	48	51	1.1	72	72	1.0
Geary County, Kans	274	26	38	1.5	0	0	----------
Scott County, Ky	332	57	456	8.0	50	75	1.5
Greenwood County, S. C	861	28	70	2.5	0	0	----------
Williamson County, Tenn	482	57	147	2.6	59	133	2.3
Rockbridge County, Va	512	15	18	1.2	21	22	1.0
Southampton County, Va	757	33	33	1.0	17	17	1.0
Total	4,598	303	893	----------	287	372	----------
Average	575	37.9	111.6	2.9	35.9	46.5	1.3
Brunswick County, Va	626	122	158	1.3	59	67	1.1
Greensville County, Va	410	67	127	1.9	37	67	1.9

[1] Freeman, Allen: A study of rural health practice. The Commonwealth Fund, New York City, 1933.

METHOD OF CASE FINDING

As previously stated, 75 percent of all births which occurred within Brunswick and Greensville Counties were attended by midwives. The midwives had been instructed by the State health department to report all of their ante-partum cases to the county health department. About 40 percent of the maternity cases seen by the nurses were reported by the midwives; and while this may not seem an especially large percentage when compared with the percentage of cases delivered by midwives, quite frequently the midwife was not engaged until labor had begun. In that event it was not possible to report the case as a prenatal case to the health department.

Twenty-eight percent of the cases coming to the attention of the nurses were reported by the patients themselves or some relative of the patient. Sometimes the patients attended a class or clinic, but more frequently they came to the health department office seeking help or wrote to the nurses asking them to call. Neighbors reported 15 percent of the cases to the health department, and about 8 percent were discovered by the nurses while visiting other members of the family. About 4 percent of the maternity cases were reported by physicians. The remaining cases were reported by the poormaster, school teachers, practical nurses, and others. In Cattaraugus County, N. Y., where physicians attend most of the births, they also reported a larger percentage of maternity cases known to the nurses. Midwives, neighbors, and visits to other members of the family were about equally important as sources of information in that county. Table 2 gives the distribution of the maternity cases visited by the nurses in Brunswick and Greensville Counties and those visited by

the nurses in Cattaraugus County, according to the source of first information.

TABLE 2.—*Distribution of maternity cases visited by the nurses in Brunswick-Greensville Counties and in Cattaraugus County according to source of first information*

Source of information	Brunswick-Greensville		Cattaraugus [1]	
	Number	Percent	Number	Percent
Physician	8	3.6	44	40.4
Midwife	89	40.1	19	17.4
Visit of other member of family	17	7.7	18	16.5
Neighbor	34	15.3	17	15.6
Patient or relative	63	28.3	9	8.3
Other	11	5.0	2	1.8
Total	[2] 222	100.0	[3] 109	100.0

[1] Randall, Marian G., Quarterly Bulletin, Milbank Memorial Fund, New York City, vol. 4, July 1931, no. 3, p. 107.
[2] Source of information on 12 cases unknown.
[3] Source of information on 22 cases unknown.

ECONOMIC STATUS OF MATERNITY CASES

About 70 percent of the maternity cases visited by the nurses were in the poor or very poor economic groups, as compared with 61 percent of the maternity cases found among the families included in the family study.[10] About 50 percent of the families in the family study were in poor or very poor economic circumstances. Thus, it would appear as though there were more pregnancies in the families of the lower income groups and that the nurses tended to select maternity cases from the lower income groups for visiting.

TABLE 3.—*Distribution of all families included in the family study, of all maternity cases included in the family study, and of the maternity cases visited by the Brunswick-Greensville nurses according to economic status*

Economic status	All families in the family study		All maternity cases in the family study		Maternity cases visited by nurses	
	Number	Percent	Number	Percent	Number	Percent
Comfortable	88	8.7	8	4.8	14	6.3
Moderate	420	41.6	56	34.1	54	24.1
Poor	374	37.1	72	43.6	97	43.3
Very poor	127	12.6	29	17.5	59	26.3
Total	1,009	100.0	165	100.0	[1] 224	100.0

[1] Economic status of 10 maternity cases unknown.

[10] See footnote 4.

ANTE-PARTUM VISITS

STAGE OF PREGNANCY WHEN FIRST SEEN BY THE NURSES

It is generally agreed that ante-partum supervision should begin early in pregnancy if it is to be of greatest value; yet getting in touch with patients during the early months of pregnancy is often one of the most difficult problems of the public health nurse. From table 4 it will be seen that 22, or about 12 percent, of the 189 ante-partum cases visited by the public health nurses in the Brunswick-Greensville area were seen before the end of the third month. About 62 percent of the cases were not seen until the last 3 months of pregnancy.

TABLE 4.—*Distribution of ante-partum cases visited by the nurses according to the month of pregnancy when the case was first visited*

	First, second, and third months		Fourth, fifth, and sixth months		Seventh, eighth, and ninth months		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	22	11.6	50	26.5	117	61.9	189	100 0

Table 5 shows that the source of first information about the majority of those cases visited during the first 3 months was the patient herself, or some relative of the patient. Midwives reported about 40 percent of the ante-partum cases to the nurses, but 54, or about 73 percent, of those cases were not referred to the nurses until the last 3 months of pregnancy. It is quite probable that the patients did not engage the midwives until late in pregnancy.

TABLE 5.—*Source of first information about ante-partum cases visited for the first time during certain months of pregnancy according to the source of first information about the case*

Source of information	First, second, and third months		Fourth, fifth, and sixth months		Seventh, eighth, and ninth months		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Patient or patient's relative	14	63.6	14	28.0	30	25.6	58	30.7
Midwife	5	22.7	15	30 0	54	46.2	74	39.2
Physician	0		2	4 0	2	1.7	4	2.1
Neighbors	1	4.5	9	18 0	15	12.8	25	13.2
Visits to others in family	2	9.1	4	8 0	8	6.8	14	7.4
Other	0		6	12 0	8	6 8	14	7.4
Total	22	100.0	50	100.0	117	100.0	189	100.0

The 189 ante partum cases visited by the nurses received a total of 285 home and 39 office visits during the study year. This gives an average of 1.7 visits per case. However, 65 percent of the cases

received but one visit. Only 2 cases received more than 5 visits; one of those was visited 8 times and one 12 times. The Greensville County nurse had a visit frequency average of about 2.0 per case, as compared to 1.5 per case for the Brunswick County nurse. However, the percentages of cases receiving but one visit were practically the same in both counties Six, or approximately 9 percent, of the Greensville cases received 39 percent of the total ante partum visits which were made during the year.

The month of pregnancy in which the first contact was made may influence the number of visits which will be made to a given case. There may be little opportunity to make more than one visit to those patients who are not seen until the ninth month of pregnancy. Others may not have been "present" during the study year for more than one or two months. For instance, those patients who were in their third or fourth month of pregnancy when the study closed would not normally receive more than one or two visits, even though the first contact was made early in pregnancy. Table 6 shows the number of visits to ante-partum cases distributed according to the number of months they were known to the nurse.

TABLE 6.—*Distribution of ante-partum cases and visits according to the number of months during the study year in which the cases were known to the public health nurses*

Total months of study year during which patient was known to the nurses	Number of patients	Visits to patients			Average number of times patient was seen by the nurse
		Home	Office	Total	
1 or less	58	62	15	77	1.3
2	59	77	16	93	1 5
3	26	48	2	50	1 9
4	20	36	3	39	1 9
5	10	34	2	36	3 6
6	6	7	0	7	1 1
7	5	10	0	10	2 0
8	3	8	1	9	3 0
More than 8	2	3	0	3	1 5
Total	189	285	39	324	1 7

From table 6 it is evident that the average number of visits to those patients who were known to the nurses for 6 or more months was not significantly greater than the average number of visits to those who were known to the nurses for 2 months or less.

The history of previous pregnancies is commonly accepted as a criterion for selecting cases for prenatal nursing service. It is usually assumed that those who are pregnant for the first time, or who have had previous stillbirths or miscarriages, need more nursing service than do those who have had previous uncomplicated pregnancies. However, the average number of visits per case to the 44 women who were pregnant for the first time was 1.1, while the average number of

visits to the 95 women who had had previous uncomplicated pregnancies was 1.6. The average number of visits to the 50 women who gave histories of previous stillbirths or miscarriages was 1.8, but the difference in the frequency of visits to these various types of cases may not be important. These data appear to indicate that no special effort was made to visit those ante-partum cases with histories of previous complications more frequently than those cases with histories of previous uncomplicated pregnancies.

Twenty-two of the ante-partum cases received three or more visits. A special analysis was made of the 22 families represented by these cases to see whether there were any apparent reasons why these few cases received more than the usual one or two visits. Fourteen of the 22 cases receiving three or more visits lived in Greensville County, and all but three of them lived in the village of Emporia. Eleven were colored. The majority were classed as "poor" in economic status, but only three were listed as receiving material aid. Eight of the 14 cases were under medical supervision. A special check was made to see whether there were other members of the family under supervision who might require a number of nursing visits. It was thought that the additional prenatal visits might perchance be incidental to visits to acute communicable disease or tuberculosis, cases of which usually have a fairly high visit frequency rate; but no tuberculosis or other communicable disease cases were found in any of these families. In one family a preschool health supervision case was visited five times in regard to a tonsillectomy, but there were very few other individuals from these homes who received nursing visits of any type, and only a few of those who were visited received more than one visit. Three of the 14 cases receiving three or more visits were under treatment for syphilis, one was a heart case, and one had pellagra. One case, with no apparent complications, was visited four times during the fifth month and was then not revisited until after delivery. Thus, there was no apparent reason why these Greensville County cases should have received more visits than the other ante-partum cases unless convenient location was a factor.

Of the 8 cases receiving three or more visits in Brunswick County, 1 was an active tuberculosis case, 1 had an attack of appendicitis during the ante-partum stage, 1 was scheduled to have a Caesarian section, and another was an obesity case requiring special treatment. Five visits were made to one home in the interest of typhoid-fever control. The ante-partum visits appeared to be incidental to the typhoid-control visits. There were no apparent reasons for the repeated visits in the other three cases. In Brunswick County as in Greensville, the majority of the cases receiving three or more visits were under medical supervision. However, location probably was not a factor in Brunswick County as none of the cases lived in the

county seat, and those receiving three or more visits were not concentrated in any particular part of the county.

SERVICES RENDERED TO ANTE-PARTUM CASES

Five main types of ante-partum information or service were recorded. This classification included—

Advice in regard to medical examination and care;
Instruction on preparation for delivery;
Instruction on preparation of baby's layette;
Instruction on diet and personal hygiene; and
Distribution of literature.

One of the objectives of the public health nurses was to secure a medical examination for every ante-partum case. The importance of having an examination by a physician early in pregnancy, even though a midwife had been engaged for the delivery, was explained to 85 of the 189 ante-partum patients who were visited by the nurses.

Eighty, or about 44 percent, of the ante-partum patients visited by the nurses consulted a physician one or more times during pregnancy. As previously stated, a limited number of colored cases were examined at the demonstration clinic held in Brunswick County. The private physicians of Greensville County made free prenatal examinations occasionally, when requested to do so by the nurse, but the number was not large. Table 7 gives the distribution of ante-partum cases visited by the nurses according to medical care and economic status.

TABLE 7.—*Distribution of ante-partum cases visited by the nurses according to economic status [1] and medical supervision*

Economic status	Had some medical supervision		Had no medical supervision		Total	
	Number	Percent	Number	Percent	Number	Percent
Comfortable	7	70 0	3	30 0	10	100 0
Moderate	24	48 0	26	52 0	50	100 0
Poor	34	42 5	46	57 5	80	100 0
Very poor	15	34 9	28	65 1	43	100 0
Total	80	43 7	103	56 3	183	100 0

[1] Economic status unknown for 6 cases

Since 70 percent of the maternity cases were among the poor or very poor economic groups, it was thought that inability to pay for medical services might have influenced the number who had no medical care. It may be noted in table 7 that 30 percent of those who were in comfortable circumstances and 52 percent of those who were in moderate circumstances did not consult a physician during pregnancy. This appears to indicate that not all of the mothers

appreciated the importance of having a medical examination during pregnancy.

Since about 97 percent of the maternity cases in the Brunswick-Greensville area were delivered at home, the preparation for home delivery was regarded by the nurses as an important objective of the ante-partum visit. Practically all of the cases visited received instruction in the preparation for delivery. This instruction was in accordance with the information contained in the printed instructions issued by State and Federal health agencies. Copies of the printed instructions were left with those patients who could read. The nurses did little demonstration of the actual preparation themselves, but the midwives were encouraged to visit and actually show their prospective patients how to make newspaper bed pads and how to prepare and sterilize dressings.

Instructions on diet and general hygiene were given to about 95 percent of the cases who were visited by the nurses. A few cases were seen so late in pregnancy that diet instructions would have had little effect, and on a few records the nurses indicated that the mothers did not appear to benefit by instruction. Quite frequently the nurses were obliged to arrange for material relief for the maternity cases. Food and clothing were the articles most frequently provided, and the arrangements were usually made through the county supervisor of the poor.

The preparation of the baby's layette was discussed with practically all of the ante-partum cases. Many of those who were not seen until the last month of pregnancy had prepared their layettes before the nurse visited them, but the nurse usually inspected their work and suggested additions when indicated. A number of the mothers were financially unable to get the minimum amount of supplies. The colored mothers' clubs, as a rule, made it their business to prepare baby layettes from used flour or sugar sacks, and these layettes were given to the nurse to be distributed at her discretion.

The Greensville County nurse made blood-pressure readings on 92 percent of her ante-partum cases. Arrangements were made for a medical examination when the readings were found to be abnormally high. Urinalyses were not done by either of the nurses, but specimens were collected from 69 percent of the cases and sent to the State laboratory for examination.

POST-PARTUM VISITS

Only 96 of the 234 maternity cases carried by the Brunswick-Greensville nurses were seen by the nurses during the 6 weeks' period following delivery. Since there were 1,036 live and stillbirths in that area during the study year, about 9 percent of the maternity cases received visits during the post-partum period.

Forty-five of the 96 post-partum cases were not known to the nurses during the ante-partum period and received their first visit from the nurses after delivery. Midwives reported 15, or about 33 percent, of those post-partum cases who were not seen during the ante-partum period. According to the midwives' statements, these patients did not engage them prior to delivery but, instead, called them after labor had begun. Neighbors reported about 20 percent of the post-partum cases and physicians reported about 9 percent of the cases to the health department, while relatives of the patients reported about 11 percent of the cases. Most of the remaining cases were found by the nurses while visiting the homes for other purposes.

One hundred and thirty-four visits were made to the 96 maternity cases visited during the post-partum period by the Brunswick-Greensville nurses, giving an average of 1.4 visits per case. However, 79 percent of the post-partum cases received but one visit. A few cases received from four to six visits each. According to the appraisal form,[11] full credit is given for post-partum nursing visits if there are 500 visits per 1,000 births. The Brunswick-Greensville rate is only slightly better than 100 visits per 1,000 births.

Thirty-seven, or approximately 39 percent, of the post-partum cases carried by the nurses were visited during the first week following delivery. Thirty, or about 31 percent, of them received their first post-partum visits during the second week after delivery. Thus approximately 70 percent of the post-partum cases receiving nursing service were visited during the lying-in period, the most productive period for a post-partum visit. Eleven cases were visited during the third week and the remaining 18 cases were visited before the end of the sixth week following delivery.

SERVICES RENDERED TO POST-PARTUM CASES

Advice on post-partum nursing care was given to the attendant on 89 percent of the cases. The attendant was usually some member of the household, as it was not customary for the midwives to remain in the home and give nursing care to the mother. Those post-partum cases seen before delivery were often given some instruction prior to delivery. As was previously stated, 29 of the post-partum cases were seen for the first time more than two weeks after delivery. Practically no demonstrations of nursing care were given.

While advice on general hygiene and nutrition was given almost universally to ante-partum cases, only 25 percent of the post-partum cases received this instruction. According to the nursing records, nutrition was never discussed on a post-partum visit if the case had been visited during the ante-partum period and the subject had been

[11] American Public Health Association Appraisal Form for Rural Health Work, p. 61. American Public Health Association, New York City, 1932.

discussed at that time. While proper food habits of the mother during the post-partum period may not be as important as during the ante-partum period, the diet of the mother during puerperium is one of the factors in the maintenance of breast feeding and is worthy of consideration. Approximately 23 percent of the post-partum cases were given literature on infant care.

From the nursing records it would appear that the importance of a post-partum examination was not emphasized as a routine practice by the nurses when making post-partum visits. The records showed that the need for a post-partum examination was explained to but 50 percent of the cases visited. Since but one visit was made to a majority of the post-partum cases, and that usually early, a complete record could not be obtained as to how many might have had post-partum examinations. Of the 165 maternity cases included in the family survey,[12] only 9, or about 5 percent, reported post-partum examinations. From these data it would appear that post-partum examinations were not often made in the Brunswick-Greensville area.

WHAT HAPPENED TO THE MATERNITY CASES WHO WERE VISITED BY THE BRUNSWICK-GREENSVILLE NURSES?

Of the 234 maternity cases visited by the Brunswick-Greensville nurses, 96 were seen by the nurses following delivery, and on this number only were the nurses able to supply delivery history. In order to get this information on the 138 patients seen only during the ante-partum period, an analysis was made of the birth records in the State bureau of vital statistics. Delivery information was obtained for 119 of the 138 cases. A few of those who were not found in the records of the bureau of vital statistics were not due to be delivered until after the check had been made. Mistakes in names or the possibility that some of the pregnancies resulted in miscarriages which were not reported to the bureau of vital statistics may have accounted for the others who were not found. Delivery history was therefore obtained from 215 of the 234 maternity cases visited by the nurses.

Table 8 gives a comparison of the outcome of the pregnancies occurring among those families included in the family survey[13] and those who were visited by the nurses. Of the 215 cases in which delivery information was obtained in connection with the nursing study, 192, or approximately 89 percent, resulted in full-term live babies. Of the 167 pregnancies occurring among the families included in the family survey, 142, or approximately 85 percent, resulted in full-term live babies. In 16, or about 7 percent, of the cases visited by the nurses, stillbirths occurred, while 15, or about 9 percent, of the pregnancies reported in the family survey resulted in stillbirths.

[12] See footnote 4.
[13] See footnote 4.

Only 4, or about 2 percent, of the cases visited by the nurses miscarried before the end of the twenty-eighth week of pregnancy, while 7, or about 4 percent, of those included in the family survey resulted in miscarriages. These figures are too small to warrant any conclusions concerning the effect of the nursing service. Furthermore, the family survey is likely to reveal quite nearly the true number of interrupted pregnancies; while in a nursing service, where many pregnancies come to the nurses' attention late, miscarriages and stillbirths would tend to be missed.

TABLE 8.—*Comparison of the results of pregnancy among 215 maternity cases visited by the public health nurses and those maternity cases included in the family study*

Result	Maternity cases visited by nurses		Maternity cases in family study	
	Number	Percent	Number	Percent
Live births	195	90.7	145	86.8
Stillbirths	16	7.4	15	9.0
Miscarriages	4	1.9	7	4.2
Total	215	100.0	167	100.0

Of the 215 patients visited by the nurses and for whom delivery information was obtained, 20 miscarried or gave birth to still-born babies. Ten of the 20 gave histories of previous stillbirths or miscarriages, 6 were first preganancies, and 4 had had previous live births but gave no history of previous stillbirths or miscarriages. A check on the histories of the past pregnancies of all (234) maternity patients visited by the nurses revealed that 62, or approximately 27 percent, did give histories of previous stillbirths or miscarriages. In the family survey,[14] only 15 percent of the maternity cases gave histories of previous stillbirths or miscarriages. Thus it would appear that there may have been some selection of maternity cases in Brunswick-Greensville Counties on the basis of the history of previous complications, even though there was no increase in the number of visits per case on this basis.

Five, or 31 percent, of the 16 stillbirths occurring among those cases visited by the nurses were attended by physicians; 4, or 25 percent, by physicians and midwives; and 7, or 44 percent, by midwives alone. It is probable that the physicians were not called until quite late in labor for those cases which were attended by both physicians and midwives. Thus midwives delivered without medical assistance 44 percent of the stillbirths occurring among those cases visited by the nurses, and they assisted with the delivery of an additional 25 percent. The midwives delivered without medical assistance 68 per-

[14] See footnote 4.

cent of the cases visited by the nurses, so that proportionately their stillbirth rate was not higher than that of the physicians.

According to the records of the State bureau of vital statistics, the percentages of stillbirths in the whole State of Virginia (4.2) and for the Brunswick-Greensville district (4.6) are less than the percentage of stillbirths recorded among the cases visited by the nurses (7.4). However, the percentage of stillbirths among the maternity cases included in the family survey [14] (9.0), which included a representative sample of the Brunswick-Greensville population, is somewhat higher than that for those visited by the nurses. Therefore it is probable that the reporting of stillbirths to the State bureau of vital statistics may not be complete.

According to the records of the State bureau of vital statistics, no maternal deaths occurred among the 244 maternity patients known to the nurses. However, according to the nursing records, one maternity patient who had been visited by the nurses died in a hospital outside of the study area and was not charged to the Brunswick-Greensville area.

SUMMARY

Two nurses, rendering a generalized type of public health nursing service to a population of approximately 34,000 people, reached through their home and office visits about 22 percent of the maternity cases occurring within the area during the study year. This percentage compares very favorably with the percentage of maternity cases reached each year by the nurses in Cattaraugus County, N. Y., and Rutherford County, Tenn., where the average population per nurse was about 6,000.

Because of the large colored population and the large percentage (75 percent) of births attended by untrained midwives, maternity hygiene was considered by the local and the State health departments to be one of the most important problems confronting the community. This area had a neonatal death rate of 34.1 per 1,000 live births, and, according to the Appraisal Form for Rural Health Work, at least 25 percent of all maternity cases should have been under ante-partum supervision if the maternity needs of the community were to have been met. Only 189, or about 18 percent, of all maternity cases occurring within the area received advice or service from the nurses during the ante-partum period, and the amount of service rendered to some of the cases was extremely limited. The appraisal form recommends five nursing visits during the ante-partum period and three visits during the post-partum period. The average number of ante-partum visits per case was 1.7, and the average number of post-partum visits per case was 1.4. However, when one considers the

[14] See footnote 4.

fact that there were but two nurses engaged on a generalized type of public health nursing program for 34,000 people scattered over 864 square miles, the extent of the maternity nursing service in this area would indicate that it received a reasonable share of the public health nursing service available to the people of that area.

These data represent the findings from a study of but one rural health department and do not warrant any widespread conclusions or recommendations. However, the study does suggest a number of questions which health administrators and public health nurses may wish to consider when planning a maternity nursing program.

First, what is the extent of the maternity problem and what percentage of the maternity cases should the nurses visit per year? If it is decided that 25 percent of the maternity cases should be receiving visits from the public health nurses, which 25 percent should be selected? Will any 25 percent be satisfactory or should a special effort be made to visit those women who are pregnant for the first time or who have had complications with previous pregnancies?

Second, the appraisal form recommends that each maternity case receive approximately five ante-partum and three post-partum visits. Should all maternity cases have the same number of visits? Will there be any variation in the individual needs of different women? Is it possible to reach a point of "diminishing returns" in prenatal visits, that is, are some prenatal cases visited unnecessarily frequently? On the other hand, if only one visit is made per case, are the results worth while?

Third, in those communities where a large proportion of the maternity cases are dependent upon midwives for delivery care, will the effectiveness of the nursing service be limited by the facilities for medical ante-partum and post-partum examination? What arrangements may be made by the health department for providing this necessary medical service?

Fourth, what provision is made for the nursing care of the newborn baby and the mother following delivery? Is it possible to give satisfactory instruction without actually demonstrating post-partum nursing care? If effective demonstrations are to be given, should the visit be made within the first 2 or 3 days following delivery? What methods are to be used to secure early information about the delivery?

DIRECTORY OF WHOLE-TIME COUNTY HEALTH OFFICERS, 1935

The information contained in this directory of whole-time county health officers was obtained through questionnaires sent to each State department of health. For the purpose of insuring uniformity in the

returns, a "whole-time" county health officer was defined as "one who does not engage in the practice of medicine or in any other business but devotes all of his time to his official duties." Similar directories have been issued annually since 1922, with the exception of 1932. In 1934 the directory was issued as Reprint 1649 from the Public Health Reports.

The publication of directories of State health departments was begun in 1912 and, with the exception of the year 1932, has been continued without interruption to the present time. The 1934 directory was issued as Reprint 1675.

Directories of city health officers have been published annually since 1916, with the exception of 1932, when funds were not available either for this or other directories. In 1934 the directory was issued as Reprint 1685 from the Public Health Reports.

State and County	Name of health officer	Post office	Official title
Alabama:			
Autauga	G. W. Warrick, M. D	Prattville	County health officer.
Barbour	E. M. Moore, M. D	Clayton	Do.
Blount	S. D. Sturkie, M. D	Oneonta	Do.
Bullock	L. G. Cole, M. D	Union Springs	Do.
Calhoun	G. A. Cryer, M. D	Anniston	Do.
Chambers	W. J. Donald, M. D	LaFayette	Do.
Cherokee	S. C. Tatum, M. D	Center	Do.
Cleburne	F. R. Wood, M. D	Heflin	Do.
Colbert	A. M. Shelamer, M. D	Tuscumbia	Do.
Conecuh	E. L. Kelly, M. D	Evergreen	Do.
Covington	C. D. McLeod, M. D	Andalusia	Do.
Crenshaw	J. O. Foster, M. D	Luverne	Do.
Cullman	M. S. Whiteside, M. D	Cullman	Do.
Dale	W. L. Orr, M. D	Ozark	Do.
Dallas	L. T. Lee, M. D	Selma	Do.
Elmore	C. S. Cotlin, Jr., M. D	Wetumpka	Do.
Escambia	G. T. Rowe, M. D	Brewton	Do
Etowah	G. L. Murphree, M. D	Gadsden	Do.
Franklin	N. P. Underwood, M. D	Russellville	Do.
Houston	F. G. Granger, M. D	Dothan	Do.
Jackson	E. A. Thorne, M. D	Scottsboro	Do.
Jefferson	J. D. Dowling, M. D	Birmingham	Do.
Lamar	W. J. B. Owings, M. D	Vernon	Do.
Lauderdale	W. D. Hubbard, M. D	Florence	Do.
Lawrence	R. E. Harper, M. D	Moulton	Do.
Lee	H. C. McRee, M. D	Opelika	Do.
Limestone	W. A. Minsch, M. D	Athens	Do.
Lowndes	E. F. Leatherwood, M. D	Haynesville	Do.
Macon	Murray Smith, M. D	Tuskegee	Do.
Madison	W. C. Hatchett, M. D	Huntsville	Do.
Marengo	E. T. Norman, M. D	Linden	Do.
Marion	W. T. Burkett, M. D	Hamilton	Do.
Marshall	L. L. Parks, M. D	Guntersville	Do.
Mobile	O. L. Chason, M. D., Dr. P. H.	Mobile	Do.
Monroe	R. D. Neal, M. D	Monroeville	Do.
Montgomery	J. L. Bowman, M. D	Montgomery	Do.
Morgan	L. R. Murphree, M. D	Decatur	Do.
Perry	J. R. Long, M. D	Marion	Do.
Pickens	J. J. Croley, M. D	Carrollton	Do.
Pike	W. H. Abernethy, M. D	Troy	Do.
Russell	M. L. Shaddix, M. D	Phenix City	Do.
Shelby	H. T. Donovan, M. D	Columbiana	Do.
Sumter	S. J. Williams, M. D	Livingston	Do.
Talladega	J. H. Hill, M. D	Talladega	Do.
Tallapoosa	C. C. Fargason, M. D	Dadeville	Do.
Tuscaloosa	A. A. Kirk, M. D	Tuscaloosa	Do.
Walker	A. M. Waldrop, M. D	Jasper	Do.
Washington	I. C. Sumner, M. D	Chatom	Do.
Wilcox	E. L. McIntosh, M. D	Camden	Do.
Winston	M. R. McWhorter, M. D	Double Springs	Do.

State and County	Name of health officer	Post office	Official title
Arizona:			
Cochise	R. B. Durfee, M. D	Bisbee	Director.
Gila	Anson B Ingels, M. D., F. A. P. H. A., F A. M. A	Globe	Do.
Maricopa	A N. Crain, M. D	Phoenix	Do.
Pima	L. H. Howard, M. D	Tucson	Do.
Arkansas:			
Ashley	A. M. Gibbs, M. D, B. S.	Hamburg	County health officer.
Clark	W. M. Smith, M. D., B. A	Arkadelphia	Do.
Conway	A B Jemison, M. D	Morrilton	Do.
Crittenden	B. M Stevenson, M. D	Marion	Do.
Cross	J L. Griffin, M D	Wynne	Do.
Garland	J. F Merritt, M. D	Hot Springs	Do.
Jackson	M. B. Owens, M D.	Newport	Do.
Jefferson	W H. Bruce, M D	Pine Bluff	Do.
Little River	J. W Ringgold, M. D	Ashdown	Do.
Mississippi	A. M Washburn, M D	Blytheville	Do.
Monroe	W. P. Scarlett, M. D	Clarendon	Do.
Ouachita	R. C. Kennerly, M. D	Camden	Do.
Phillips	W. B Bruce, M D	Helena	Do.
Pope	A B Tate, M. D	Russellville	Do.
Pulaski	J. A Summers, M. D	Little Rock	Do.
Saline	D. W. Fulmer, M. D	Benton	Do.
Sebastian	J E. Johnson, M. D	Fort Smith	Do.
Woodruff	J. F. Hays, M. D	Augusta	Do.
Yell	J K. Grace, M. D, B S	Danville	Do.
California:			
Alameda	I O. Church, M. D., C. P. H.	Oakland	Do.
Contra Costa	W A Powell, M D.	Martinez	Do.
Fresno	W F. Stein, M. D	Fresno	Do.
Imperial	W. F. Fox, M D	El Centro	Do.
Los Angeles	J L Pomeroy, M D	Los Angeles	Do.
Madera	Lee A. Stone, M. D	Madera	Do.
Monterey	R M. Fortier, M. D	Salinas	Do.
Orange	K. H Sutherland, M. D	Santa Ana	Do.
Riverside	W A. Jones, M D	Riverside	Do.
San Bernardino	E F. Godfrey, M. D.	San Bernardino	Do.
San Joaquin	J. J Sippy, M D	Stockton	District health officer.
San Diego	A M Lesem, M D	San Diego	County health officer.
San Luis Obispo	A F Gilliham, M. D.	San Luis Obispo	Do.
San Mateo	Harper Peddicord	Redwood City	Do.
Santa Barbara	R C Main, M D	Santa Barbara	Do.
Stanislaus	E F. Reamer, M. D	Modesto	Do.
Connecticut:			
West Hartford [1]	H. B Smith, M. D., C. P. H	West Hartford	Superintendent of health.
Fairfield [1]	L E Poole, M. D	Fairfield	Health officer.
Delaware.			
Kent	E. F. Smith, M D	Dover	County health officer.
New Castle	J. R. Downs, M. D	Newark	Do.
Sussex	F I. Hudson, M. D	Georgetown	Do.
Florida:			
Escambia	W. A. McPhaul, M. D.	Pensacola	Do.
Leon	L. J. Graves, M. D.	Tallahassee	Do.
Georgia:			
Baldwin	O F. Moran, M D.	Milledgeville	Commissioner of health.
Bartow	A C. Shamblin, M. D	Cartersville	Do.
Bibb	J D. Applewhite, M. D	Macon	Do.
Chatham	V. H. Bassett, M. D	Savannah	Do.
Clarke	W. W. Brown, M. D.	Athens	Do.
Cobb	J. E. Lester, M. D.	Marietta	Do.
Colquitt	T. H. Chestnut, M. D	Moultrie	Do.
Decatur	M. A. Fort, M. D	Bainbridge	Do.
DeKalb	J. R. Evans, M. D.	Decatur	Do.
Dougherty	Hugo Robinson, M. D	Albany	Do.
Floyd	B. V. Elmore, M. D.	Rome	Do.
Glenn, McIntosh, Camden.	M. E. Winchester, M. D.	Brunswick	Do.
Grady	H. P. Rankin, M. D.	Cairo	Do.
Hall	C. J. Wellborn, M. D.	Gainesville	Do.
Jefferson	L. R. Bryson, M. D.	Louisville	Do.
Jenkins	H. B. Senn, M. D.	Millen	Do.
Laurens	O. H. Cheek, M. D.	Dublin	Do.
Lowndes	G. T Crozier, M. D	Valdosta	Do
Mitchell	C. O. Rainey, M. D.	Camilla	Do.
Richmond	H. Grady Callison, M. D.	Augusta	Do.
Spalding	W. C. Humphries, M. D	Griffin	Do.
Sumter	A. J. Davis, M. D.	Americus	Do.
Thomas	J. R. Dykes, M. D	Thomasville	Do.
Troup	S. C Rutland, M. D.	Lagrange	Do.

[1] Town.

State and County	Name of health officer	Post office	Official title
Georgia—Continued.			
Ware	Geo. E. Atwood, M. D	Waycross	Commissioner of health.
Washington	O. L. Rogers, M. D	Sandersville	Do.
District Health Unit No. 1. Catoosa. Walker.	R. Floyd Payne, M. D	Lafayette	District health commissioner.
Illinois:			
Dupage	W. F. Hopf, D. D. S	Wheaton	County health officer.
Iowa:			
Woodbury	W. S. Petty, M. D	Sioux City	Director.
Kansas:			
Lyon	C. Herbert Munger, M. D	Emporia	County health officer.
Sedgwick	J. C. Montgomery, M. D	Wichita	Do.
Shawnee	Frank E. McCord, M. D	Topeka	Do.
Kentucky:			
Adair	N. A. Mercer, M. D., M. P. H.	Columbia	Do.
Allen	C. W. Holland, M. D	Scottsville	Do.
Anderson	S. R Boggess, M. D	Lawrenceburg	Do.
Barren	Chas. M. Moore, M. D	Glasgow	Do.
Bath	J. S. Goodpaster, M. D	Owingsville	Do.
Boyd	R. D. Higgins, M. D	Ashland	Do.
Breathitt	B. K. Amos, M. D	Jackson	Do.
Butler	C. C. Threlkel, M. D	Morgantown	Do.
Caldwell	J. O. Nall, M. D	Princeton	Do.
Calloway	Jas. A. Outland, M. D	Murray	Do.
Carlisle	J. F. Harrell, M. D	Bardwell	Do.
Carter	A. S. Yates, M. D	Grayson	Do.
Casey	J. W. Scudder, M. D	Liberty	Do.
Clay	L. H. Wagers, M. D	Manchester	Do.
Clinton	M. W. Williamson, M. D	Albany	Do.
Edmonson	Sidney Simpson, M. D	Brownsville	Do.
Elliott	B. H. Preston, M. D	Sandy Hook	Do.
Estill	R. R. Snowden, M. D	Irvine	Do.
Fayette	C. D. Cawood, M. D	Lexington	Do.
Fleming	C. W. Christine	Flemingsburg	Do.
Floyd	Marvin Ransdell, M. D	Prestonsburg	Do.
Fulton	Hugh E. Prather, M. D	Hickman	Do.
Gallatin	J. W. Miller, M. D	Warsaw	Do.
Grant	N. H. Ellis, M. D	Williamstown	Do.
Grayson	C. F. Blankenship, M. D	Leitchfield	Do.
Green	J. M. Dishman, M. D	Greensburg	Do.
Greenup	C. W. Monroe, M. D	Greenup	Do.
Hart	C. P. Shields, M. D	Munfordville	Do.
Henderson	J. L. Tanner, M. D	Henderson	Do.
Hickman	Chas. Hunt, M. D	Clinton	Do.
Hopkins	C. R. Morton, M. D	Madisonville	Do.
Jackson	C. A. Wathen, M. D	McKee	Do.
Jefferson	Jno. D. Trawick, M. D	Louisville	Do.
Kenton	H. C. White, M. D	Covington	Do.
Knott	J. W. Duke, M. D	Hindman	Do.
Knox	C. W. Folsom, M. D	Barbourville	Do.
Laurel	G. S Brock, M. D	London	Do
Lawrence	W. C. Gose, M. D	Louisa	Do.
Lee	E. M. Brown, M. D	Beattyville	Do.
Leslie	D D. Turner, M. D	Hyden	Do.
Letcher	R. D. Collins, M. D	Whitesburg	Do.
Lincoln	K. T. Johnstone, M. D	Stanford	Do.
McCreary	Adam Stacy, M. D	Whitley City	Do.
McLean	G. L. Thompson, M. D	Calhoun	Do.
Madison	G. R. Rowntree, M. D	Richmond	Do.
Marshall	S. L. Henson, M. D	Benton	Do.
Martin	W. N. Kiet, M. D	Inez	Do.
Mason	Allen F. Murphy, M. D	Maysville	Do.
Meade	O. R. Lynch, M. D	Brandenburg	Do.
Menifee	E. T. Riley, M. D	Frenchburg	Do.
Metcalfe	H. T. Carter, M. D	Edmonton	Do.
Monroe	G. W. Bushong, M. D	Tompkinsville	Do.
Muhlenberg	Roy Orsburn, M. D	Greenville	Do.
Nicholas	E. W. Atherton, M. D	Carlisle	Do.
Ohio	A. D. Park, M. D	Hartford	Do.
Owsley	Don E. Wilder, M. D	Booneville	Do.
Perry	D. D. Carr, M. D., C. P. H.	Pikeville	Do.
Pike	R. E. Teague, M. D., C. P. H.	do	Do.
Powell	M. H. Skaggs, M. D	Stanton	Do.
Pulaski	J. C. McGuire, M. D	Somerset	Do.
Rockcastle	Walker Owens, M. D	Mount Vernon	Do.
Rowan	T A E. Evans, M. D	Morehead	Do.
Scott	F. W. Caudill, M. D., C. P. H.	Georgetown	Do.
Todd	L. A. Crosby, M. D	Elkton	Do.

State and County	Name of health officer	Post office	Official title
Kentucky—Continued.			
Trigg	E. W. Sigler, M. D.	Cadiz	County health officer.
Trimble	J. J. Gerkins, M. D.	Bedford	Do.
Union	J. F. Lynn, M. D.	Morganfield	Do.
Warren	G. M. Wells, M. D.	Bowling Green	Do.
Wayne	Mack Roberts, M. D.	Monticello	Do.
Webster	C. M. Smith, M. D.	Dixon	Do.
Wolfe	J. L. Cox, M. D.	Campton	Do.
Louisiana: [2]			
Assumption	P. M. Payne, M. D.	Napoleonville	Director.
Avoyelles	L. W. Holloman, M. D.	Marksville	Do.
Caddo	W. J. Sandidge, M. D.	Shreveport	Do.
Caldwell	Thomas Burk, M. D.	Columbia	Do.
Catahoula	L. C. Spencer, M. D.	Harrisonburg	Do.
Claiborne	H. R. Marlatt, M. D.	Homer	Do.
Concordia	John Schreiber, M. D.	Vidalia	Do.
De Soto	R. A. Tharp, M. D.	Mansfield	Do.
East Carroll	G. D. Williams, M. D.	Lake Providence	Do.
Franklin	R. E. Applewhite, M. D.	Winnsboro	Do.
Iberia	B. L. Stinson, M. D.	New Iberia	Do.
Iberville	J. C. Eby, M. D., Phar. D.	Plaquemine	Do.
Lafayette	A. J. Comeaux, M. D.	Lafayette	Do.
Lafourche	H. S. Smith, M. D.	Thibodaux	Do.
La Salle	E. L. Miller, M. D.	Jena	Do.
Lincoln	R. H. Allen, M. D.	Ruston	Do.
Madison	E. S. Freeman, M. D.	Tallulah	Do.
Morehouse	N. P. Liles, M. D.	Bastrop	Do.
Natchitoches	W. W. Knipmeyer, M. D., C. P. H.	Natchitoches	Do.
Ouachita	John W. Williams, M. D., C. P. H.	Monroe	Do.
Pointe Coupee	F. F. Rougon, M. D., Ph. G.	New Roads	Do.
Rapides	Branch J. Aymond, M. D.	Alexandria	Acting director.
Red River	B. Hochfelder, M. D.	Coushatta	Director.
Richland	R. O. C. Green, M. D.	Rayville	Do.
St. Landry	L. A. Masterson, M. D.	Opelousas	Do.
St. Martin	P. H. Fleming, M. D.	St. Martinville	Do.
St. Mary	W. W. Poimboeuf, M. D.	Franklin	Do.
Tensas	W. B. Summers, Jr., M. D.	St. Joseph	Do.
Terrebonne	M. F. Houston, M. D.	Houma	Do.
Washington	F. A. Williams, M. D.	Franklinton	Do.
Webster	W. C. Summer, M. D.	Minden	Do.
West Carroll	F. S. Williams, M. D.	Oak Grove	Do.
Maine: [3]			
Bar Harbor	Frank O. Alley, C. P. H.	Bar Harbor	Health officer.
Rumford	Thomas S. Burr, M. D.	Rumford	Do.
Sanford	W. H. Kelly, M. D.	Sanford	Do.
Cooperative Health Union. Avon. Chesterville. Dallas Plantation. Eustis. Industry. Livermore. Lang Plantation. New Sharon. Rangeley. Sandy River Plantation. Farmington. Strong. Temple. Weld.	B. L. Arms, M. D.	Farmington	Do.
Motbov Union. Bradley. Milford. Old Town. Orono. Veazie.	Howard L. Jackson, M. D.	Old Town	Do.
Maryland:			
Allegany	J. P. Franklin, M. D.	Cumberland	Deputy State and county health officer.
Anne Arundel	John H. Janney, Jr., M. D.	Annapolis	Do.
Baltimore	J. S. Bown, M. D.	Towson	Do.
Calvert	I. N. King, M. D.	Prince Frederick	Do.
Caroline	Louis S. Welty, M. D.	Denton	Do.
Carroll	W. C. Stone, M. D.	Westminster	Do.
Cecil	C. A. Kane, M. D.	Elkton	Do.

[2] Parish.
[3] Township or district.

State and County	Name of health officer	Post office	Official title
Maryland—Con.			
Charles	J. S. Cunningham, M. D	La Plata	Deputy State and county health officer.
Dorchester	E. A. Jones, M. D	Cambridge	Do.
Frederick	E. C. Kefauver, M. D	Frederick	Do.
Garrett	Eugene C. Peck, M. D	Oakland	Do.
Harford	T. A. Callahan, M. D	Bel Air	Do.
Howard	Wm. J. French, M. D	Ellicott City	Do.
Kent	R. G. Beachley, M. D., D. P. H	Chestertown	Do.
Montgomery	V. L. Elliott, M. D., D. P. H	Rockville	Do.
Prince Georges	A. B. Hooton, M. D	Upper Marlboro	Do.
Queen Annes	James A. McCallum, M. D.	Centreville	Do.
St. Marys	D. St. Clair Campbell, M. D.	Leonardtown	Do.
Somerset	Robert H. Johnson, M. D	Princess Anne	Do.
Talbot	G. C. Halley, M. D.	Easton	Do.
Washington	W. Ross Cameron, M. D	Hagerstown	Do.
Wicomico	Seth H. Hurdle, M. D	Salisbury	Do.
Worcester	Bradford Massey, M. D	Pocomoke City	Do.
Massachusetts:			
Barnstable	Almon P. Goff, M. D	Hyannis	County health officer.
Nashoba [4]	James O. Wails, M. D., C. P. H.	Ayer	Director public health.
Southern Berkshire.[4]	Harold W. Stevens, M. D	Great Barrington	Medical director.
Michigan:			
Allegan	A. B. Mitchell, M. D	Allegan	County health officer.
Barry	R. B. Harkness, M. D	Hastings	Do.
Eaton	J. W. Davis, M. D	Charlotte	Do.
Genessee	T. E. Gibson, M. D	Flint	Do.
Hillsdale	E. G. McGavran, M. D	Hillsdale	Do.
Isabella	F. R. Town, M. D	Mount Pleasant	Do.
Kent	J. D. Brook, M. D	Grand Rapids	Do.
Midland	David Littlejohn, M. D	Midland	Do.
Oakland	John D. Monroe, M. D	Pontiac	Do.
Ottawa	Ralph Ten Have, M. D	Grand Haven	Do.
Saginaw	Wm. H. Pickett, M. D., C. P. H.	Saginaw	Do.
Van Buren	T. R. Meyer, M. D	Paw Paw	Do.
Wexford	S. C. Moore, M. D	Cadillac	Do.
District health unit	Guy R. Post, M. D., C. P. H.	White Cloud	District health officer.
Lake.			
Newaygo.			
Oceana.			
District health unit	Gladys Kleinschmidt, M. D.	West Branch	Do.
Alcona.			
Iosco.			
Ogemaw.			
Oscoda.			
District health unit	Carleton Dean, M. D., C. P. H.	Charlevoix	Do.
Antrim.			
Charlevoix.			
Emmet.			
Otsego.			
District health unit	G. B. Moffat, M. D., D. P. H.	Rogers City	Do.
Alpena.			
Cheboygan.			
Montmorency.			
Presque Isle.			
Township of Grosse Pointe.	B. H. Warren, M. D	Grosse Pointe	Township health director.
Villages of—			
Grosse Pointe Park.			
Grosse Pointe.			
Grosse Pointe Farms.			
Grosse Pointe Shores.			
Lochmoor.			
Minnesota:			
St. Louis	Carl A. Scherer, M. D	Duluth	County health officer.

[4] District.

State and County	Name of health officer	Post office	Official title
Mississippi:			
Adams	A. R. Perry, M. D., M. P. H.	Natchez	Director.
Bolivar	R. D. Dedwylder, M. D.	Cleveland	Do.
Coahoma	N. C. Knight, M. D., C. P. H.	Clarksdale	Do.
Copiah	J. W Dugger, M. D	Hazelhurst	Do.
Forrest	B. D. Blackwelder, M. D., C. P. H	Hattiesburg	Do.
Hancock	C. M. Shipp, M. D	Bay St. Louis	Do.
Harrison	Daniel J. Williams, M. D.	Gulfport	Do.
Hinds	W. E. Noblin, M. D	Jackson	Do
Holmes	C. J. Vaughn, M. D., C. P. H.	Lexington	Do.
Humphreys	J W. Barkley, M. D	Belzoni	Do.
Jackson	R. G Lander, M. D	Pascagoula	Do.
Lamar	J. N. Mason, M. D	Purvis	Do.
Lauderdale	D. V. Galloway, M. D., M. P. H.	Meridian	Do.
Lee	W. H. Cleveland, M. D	Tupelo	Do.
Leflore	L. A. Barnett, M. D	Greenwood	Do.
Lincoln	W. R. May, M. D., C. P. H.	Brookhaven	Do.
Monroe	C. H. Love, M. D.	Aberdeen	Do.
Pearl River	G. E. Godman, M. D	Poplarville	Do.
Pike	T. Paul Haney, Jr., M. D., C. P. H.	McComb	Do.
Sharkey	A K. Barrier, M. D.	Rolling Fork	Do.
Sunflower	C. C. Smith, M. D	Indianola	Do.
Union	I. B. Trapp, M. D.	New Albany	Do.
Warren	F. Michael Smith, M. D	Vicksburg	Do.
Washington	John W. Shackelford, M. D., M. P. H.	Greenville	Do.
Yazoo	H. L. McCalip, M. D, C P. H.	Yazoo City	Do.
Missouri:			
Buchanan	W. S. Hull, M. D	St. Joseph	Field agent.
Dunklin	Wheeler Davis, M. D.	Kennett	Do.
Greene	J. W. Williams, Jr., M. D	Springfield	Do.
Jackson	Jos. T. Brennan, M. D.	Independence	Do.
Marion	E. M. Lucke, M. D.	Hannibal	Do.
Miller	L. M. Garner, M. D	Tuscumbia	Do.
New Madrid	Wm. O'Bannon, M. D	New Madrid	Do.
St. Louis	L. C. Obrock, M. D.	Clayton	Do.
Montana:			
Cascade	F. L. Watkins, M. D	Great Falls	Health officer.
Gallatin	A. D. Brewer, M D	Bozeman	Do.
Lewis & Clark	Wm. M. Copenhaver, M. D.	Helena	Do.
Missoula	F. D. Pease, M D	Missoula	Do.
New Mexico:			
Bernalillo	C. Howe Eller, M. D., D. P. H.	Albuquerque	County health officer.
Dona Ana	C. W. Gerber, M. D	Las Cruces	Do.
Eddy	O. E. Puckett, M D	Carlsbad	Do.
Santa Fe	E. F. McIntyre, M. D	Santa Fe	Do.
Union	R. H. Wilson, M. D.	Clayton	Do.
Valencia	M. O. Blakeslee, M. D	Los Lunas	Do.
New York:			
Cattaraugus [5]	Reginald M. Atwater, M. D., D. P. H.	Olean	Commissioner of health.
Columbia [5]	Louis Van Hoesen, M. D.	Hudson	Do.
Cortland [5]	Daniel R. Rielly, M. D., C. P. H.	Cortland	Do.
Suffolk [5]	Arthur T. Davis, M. D.	Riverhead	Do.
Westchester [5]	Matthias Nicoll, M. D	White Plains	Do.
District Herkimer. Madison. Oneida.	H. J. Ball, M. D	Utica	District State health officer.
District Chenango. Delaware. Otsego. Schoharie.	R. D. Champlin, M. D., C. P. H.	Oneonta	Do.
District Broome. Chemung. Steuben. Tioga. Tompkins.	J. A. Conway, M. D.	Hornell	Do.

[5] Under direct supervision of county health commissioner and general supervision of district State health officer.

State and County	Name of health officer	Post office	Official title
New York—Con.			
District	F. E. Couglin, M. D., A. B., D. P. H.	Albany	District State health officer.
Albany.			
Columbia.[5]			
Greene.			
Rensselaer.			
District	A. S. Dean, B. S., M. D., D. P. H.	Buffalo	Do.
Cattaraugus.[5]			
Chautauqua.			
Erie.			
Genesee.			
Niagara.			
Orleans.			
Wyoming.			
District	M. D. Dickinson, M. D	New York City	Do.
Nassau.			
Suffolk.[5]			
District	B. Diefendorf, M. D	Ticonderoga	Do.
Clinton.			
Essex.			
Franklin.			
Hamilton.[6]			
Warren.			
Washington.			
District	C. R. Hervey, M. D	Oswego	Do.
Cayuga.[7]			
Oswego.			
Wayne.			
District	F. W. Laidlaw, M. D	Middletown	Do.
Orange.			
Rockland.			
Sullivan.			
Ulster.			
Westchester.[5]			
District	B. E. Roberts, B. S., M. D	Poughkeepsie	Do.
Dutchess.			
Putnam.			
District	S. W. Sayer, M. D	Gouverneur	Do.
Jefferson.			
Lewis.			
St. Lawrence.			
District	P. J. Rafle, M. D., C. P. H	Syracuse	Do.
Cayuga.[7]			
Cortland.[5]			
Onondaga.			
Seneca.			
District	B. R. Wakeman, M. D	Hornell	Do.
Allegany.			
Livingston.			
Monroe.			
Ontario.			
Schuyler.			
Yates.			
District	J. S. Walton, M. D	Amsterdam	Do.
Fulton.[8]			
Hamilton.[6]			
Montgomery.[8]			
Saratoga.			
Schenectady.			
District	J. E. Perkins, M. D., D. P. H.	do	Do.
Fulton.[8]			
Montgomery.[8]			
North Carolina:			
Beaufort	David Emerson Ford, M. D.	Washington	County health officer.
Bertie	F. H. Garriss, M. D	Windsor	Do.
Bladen	Robert S. Cromartie, M. D	Elizabethtown	Do.
Buncombe	Howard L. Sumner, M. D.	Asheville	Do.
Cabarrus	Daniel G. Caldwell, M. D.	Concord	Do.
Columbus	Floyd Johnson, M. D	Whiteville	Do.
Cumberland	Malcolm T. Foster, M. D.	Fayetteville	Do.
Davidson	Grover C. Gambrell, M. D	Lexington	Do.
Duplin	C. H. White, M. D	Kenansville	Do.
Durham	J. H. Epperson, M. S	Durham	Do.
Edgecombe	Rembert Ernest Broadway, M. D.	Tarboro	Do.

[5] Under direct supervision of county health commissioner and general supervision of district State health officer.
[6] Long Lake and Indian Lake Townships under supervision of Dr. Diefendorf; balance of county under supervision of Dr. Walton.
[7] Townships of Sterling, Victory, Ira, Conquest, and Cato under supervision of Dr. Hervey; balance of county under supervision of Dr. Rafle.
[8] Under direct supervision of Dr. Perkins and general supervision of Dr. Walton.

State and County	Name of health officer	Post office	Official title
North Carolina—Con.			
Franklin	R. F. Yarborough, M. D.	Louisburg	County health officer
Gaston	Robert E. Rhyne, M. D.	Gastonia	Do.
Granville	Jos. A. Morris, M. D.	Oxford	Do.
Guilford	R. M. Buie, M. D.	Greensboro	Do.
Halifax	R. S. McGeachy, M. D.	Weldon	Do.
Hyde	S. V. Lewis, M. D.	Ocracoke	Do.
Lenoir	Z. V. Moseley, M. D.	Kinston	Do.
Mecklenburg	E. H. Hand, M. D.	Charlotte	Do.
Moore	John Symington, M. D.	Carthage	Do.
Nash	T. O. Coppedge, M. D.	Nashville	Do.
New Hanover	A. H. Elliott, M. D.	Wilmington	Do.
Northampton	M. H. Seawell, M. D.	Jackson	Do.
Pitt	N. T. Ennett, M. D.	Greenville	Do.
Randolph	A. D. Gregg, M. D.	Asheboro	Do.
Richmond	B. B. Dalton, M. D.	Rockingham	Do.
Roberson	E. R. Hardin, M. D.	Lumberton	Do.
Rowan	Chas. W. Armstrong, M. D.	Salisbury	Do.
Rutherford	R. M. Bardin, M. D.	Rutherfordton	Do.
Sampson	W. P. Starling, M. D.	Clinton	Do.
Surry	J. A. Whitaker, M. D.	Mount Airy	Do.
Vance	Z. P. Mitchell, M. D.	Henderson	Do.
Wake	Alex C. Bulla, M. D.	Raleigh	Do.
Wayne	G. Fletcher Reeves, M. D.	Goldsboro	Do.
Wilkes	A. J. Eller, M. D.	Wilkesboro	Do.
Wilson	Wade H. Anderson, M. D.	Wilson	Do.
District: Avery. Yancey.	W. P. Richardson, M. D.	Burnsville	District health officer.
District: Forsyth. Stokes. Yadkin.	John Roy Hege, M. D.	Winston-Salem	Do.
District: Haywood. Jackson. Swain.	C. N. Sisk, M. D.	Waynesville	Do.
Ohio:			
Allen	J. J. Sutter, M. D.	Lima	Health commissioner.
Athens	J. M. Higgins, M. D.	Athens	Do.
Butler	C. J. Baldridge, M. D.	Hamilton	Do.
Clinton	W. K. Ruble, M. D.	Wilmington	Do.
Crawford	G. T. Wasson, M. D.	Bucyrus	Do.
Cuyahoga	Robert Lockhart, M. D.	Cleveland	Do.
Darke	W. D. Bishop, M. D.	Greenville	Do.
Delaware	B. B. Barber, M. D.	Delaware	Do.
Erie	F. M. Houghtaling, M. D.	Sandusky	Do.
Fayette	James F. Wilson, M. D.	Washington Courthouse	Do.
Hamilton	E. H. Schoenling, M. D.	Cincinnati	Do.
Hancock	S. F. Whisler, M. D.	Findlay	Do
Hocking	W. B. Lacock, M. D.	Logan	Do.
Huron	B. C. Pilkey, M. D.	Norwalk	Do.
Jefferson	J. P. Young, M. D.	Steubenville	Do.
Lorain	F. R. Dew, M. D.	Oberlin	Do.
Lucas	F. F. Devore, M. D.	Toledo	Do.
Mahoning	G. Y. Davis, M. D.	Youngstown	Do.
Marion	N. Sifritt, M. D.	Marion	Do.
Medina	T. W. Mahoney, M. D.	Medina	Do.
Meigs	W. S. Ellis, M. D.	Pomeroy	Do.
Mercer	F. E. Ayers, M. D.	Celina	Do.
Miami	E. R. Hiatt, M. D.	Troy	Do.
Montgomery	H. H. Pansing, M. D.	Dayton	Do.
Perry	F. J. Crosbie, M. D.	New Lexington	Do.
Pickaway	C. C. Beale, M. D.	Circleville	Do.
Preble	J. I. Nisbet, M. D.	Eaton	Do.
Richland	M. D. Hanson, M. D.	Mansfield	Do.
Ross	R. E. Bower, M. D.	Chillicothe	Do.
Seneca	D. W. Fellers, M. D.	Tiffin	Do.
Shelby	A. B. Lippert, M. D.	Sidney	Do.
Stark	Floyd R. Stamp, M. D.	Canton	Do.
Summit	R. H. Markwith, M. D.	Akron	Do.
Trumbull	L. A. Connell, M. D.	Warren	Do.
Tuscarawas	J. Blickensderfer, M. D.	New Philadelphia	Do.
Washington	A. G. Sturgiss, M. D.	Marietta	Do.
Wayne	W. G. Rhoten, M. D.	Wooster	Do.
Wood	H. J. Powell, M. D.	Bowling Green	Do.
Oklahoma:			
Leflore	Rush L. Wright, M. D.	Poteau	Local health director.
Oregon:			
Clackamas	A. H. Johnston, M. D.	Oregon City	County health officer.
Douglas	J. E. Campbell, M. D.	Roseburg	Do.
Jackson	C. I. Drummond, M. D.	Medford	Do.
Klamath	G. S. Newsom, M. D.	Klamath Falls	Do.
Lane	R. C. Romig, M. D.	Eugene	Do.

State and County	Name of health officer	Post office	Official title
Oregon—Continued.			
Marion	Vernon Douglas, M. D.	Salem	County health officer.
Multnomah	H. R. Cliff, M. D	Portland	Do.
South Carolina:			
Aiken	J. T. Hair, M. D	Aiken	Local health director.
Anderson	E. E. Epting, M. D	Anderson	Do.
Beaufort	W. A. Carrigan, M. D	Beaufort	Do.
Berkeley	W. K. Fishburne, M. D	Moncks Corner	Do.
Charleston	Leon Banov, M. D	Charleston	Do.
Cherokee	E. P. White, M. D., D. P. H.	Gaffney	Do.
Darlington	G. B. Edwards, M. D	Darlington	Do.
Dillon-Marion [1]	H. F. Wilson, M. D	Dillon	Do.
Dorchester	B. M. Montgomery, M. D	St. George	Do.
Fairfield	J. L. Bryson, M. D	Winnsboro	Do.
Florence	J. R. Claussen, M. D	Florence	Do.
Georgetown-Horry [1]	S. Simons, M. D., C. P. H.	Georgetown	Do.
Greenville	Baylis Earle, M. D	Greenville	Do.
Greenwood	J. E. Brodie, M. D	Greenwood	Do.
Kershaw	A. W. Humphries, M. D	Camden	Do.
Newberry	Claude Sease, M. D	Newberry	Do.
Oconee	B. F. Sloan, M. D	Walhalla	Do.
Orangeburg	G. C. Bolin, M. D	Orangeburg	Do.
Pickens	W. B. Furman, M. D	Pickens	Do.
Richland	R. W. Ball, M. D	Columbia	Do.
Spartanburg	J. M. Beeler, M. D	Spartanburg	Do.
Tennessee:			
Blount	Owen F. Agee, M. D	Maryville	County health officer.
Bradley	W. C. Sanford, M. D	Cleveland	Director health unit.
Davidson	J. J. Lentz, M. D	Nashville	County health officer.
Gibson	F. L. Roberts, M. D	Trenton	Do.
Giles	J. U. Speer, M. D	Pulaski	Director health unit.
Greene	R. S. Cowles, M. D	Greeneville	Director department of health.
Grundy	U. B. Bowden, M. D	Pelham	Director health unit.
Hamilton	J. C. Eldridge, M. D	Chattanooga	Director health department.
Hardeman	R. L. Cobb, M. D	Bolivar	Director health unit.
Humphreys	J. W. Frost, M. D	Waverly	Director health department.
Knox	A. G. Hufstedler, M. D	Knoxville	Do.
Lake	J. P. Moon, M. D	Tiptonville	Do.
Lauderdale	R. B. Griffin, M. D	Ripley	Director health unit.
Lincoln	M. F. Brown, M. D	Fayetteville	Director health department.
Maury	H. C. Busby, M. D., C. P. H.	Columbia	Do.
Monroe	D. M. Cogwill, M. D	Madisonville	Director health unit.
Montgomery	F. J. Malone, M. D	Clarksville	Director health department.
Obion	W. B. Harrison, M. D	Union City	County health officer.
Roane	J. C. Fly, M. D	Kingston	Director health department.
Rutherford	J. B. Black, M. D., C. P. H.	Murfreesboro	County health officer.
Sevier	R. C. Kash, M. D	Sevierville	Director health department.
Shelby	W. P. Moore, M. D	Memphis	County health officer.
Sullivan	F. L. Moore, M. D., C. P. H.	Blountville	Director health department.
Sumner	H. M. Kelso, M. D., C. P. H.	Gallatin	Do.
Tipton	A. J. Butler, M. D., C. P. H.	Covington	Do.
Washington	W. L. Poole, M. D., C. P. H.	Jonesboro	Acting director health department.
Weakley	M. D. Ingram, M. D	Dresden	County health officer.
Williamson	R. K. Galloway, M. D., C. P. H.	Franklin	Director health department.
Wilson	W. D. Cagle, M. D	Lebanon	Do.
Districts:			
Anderson-Campbell.	C. B. Tucker, M. D., C. P. H.	Clinton	Director health district.
Carter-Unicoi	R. B. Howard, M. D., C. P. H.	Elizabethton	Do.
Bledsoe-Sequatchie.	H. M. Roberson, M. D	Pikeville	Do.
Jackson-Fentress.	F. B. Clark, M. D	Gainsboro	Do.
Rhea-Meigs	J. Y. O'Daniel, M. D	Dayton	Do.
Texas:			
Dallas	H. E. Duncan, M. D	Dallas	Director county health unit.
El Paso	T. J. McCamant, M. D	El Paso	Do.

[1] District.

State and County	Name of health officer	Post office	Official title
Texas—Continued.			
Gregg	T. B. Wilson, M. D.	Longview	Assistant director county health unit.
Hidalgo	D. R. Handley, M. D.	Edinburg	Director county health unit.
Nolan	E. W. Prothro, M. D.	Sweetwater	Do.
Potter	B. M. Primer, M. D., M. P. H.	Amarillo	Do.
Tarrant	Burke Brewster, M.D.	Fort Worth	Do.
Utah:			
Davis	S. Gleason, M. D.	Kaysville	Director.
Vermont:			
Burlington	E. F. Foster, M. D.	Burlington	Health officer.
Montpelier	C. H. Burr, M. D.	Montpelier	Do.
Rutland	C. M. Cole	Rutland	Do.
Bennington	J. M. Ayers	Bennington	Do.
Virginia:			
Albemarle	R. A. G. Jones, M. D.	Charlottesville	Acting health officer.
Alleghany-Rockbridge.[10]	R. P. Cook, M. D.	Lexington	Health officer.
Arlington	P. M. Chichester, M. D.	Clarendon	Do.
Augusta	Harry M. Wallace, M. D.	Staunton	Do.
Brunswick-Greensville.[10]	Thomas H. Valentine, M. D.	Lawrenceville	Do.
Fairfax	Adrian L. Carson, Jr., M. D.	Fairfax	Do.
Henrico	J. C. Neale, Jr., M. D.	Richmond	Do.
Isle of Wight-Nansemond.[10]	Challis H. Dawson, M. D.	Suffolk	Do.
Norfolk-Princess Anne.[10]	Josiah Leake, M. D.	Portsmouth	Do.
Nottoway-Prince Edward.[10]	W. A. Brumfield, M. D.	Farmville	Do.
Pittsylvania	William H. Walcott, M. D.	Chatham	Do.
Southampton	Peter P. Causey, M. D.	Courtland	Do.
Southwest District	E. C. Harper, M. D.	Abingdon	Deputy director of rural health.
Bland.			
Buchanan.			
Carroll.			
Dickenson.			
Grayson.			
Lee.			
Russell.			
Scott.			
Smyth.			
Tazewell.			
Washington.			
Wise.			
Wythe.			
Valley District	R. D. Hollowell, M. D.	Harrisonburg	Health officer.
Greene.			
Madison.			
Page.			
Rappahannock.			
Rockingham.			
Shenandoah.			
Warren.			
Washington:			
Chelan	C. R. Fargher, M. D.	Wenatchee	County health officer.
Clark	R. W. Armstrong, M. D.	Vancouver	Do.
King	C. L. Dixon, M. D.	Seattle	Do.
Snohomish	H. L. Eldridge, M. D.	Everett	Do.
Spokane	W. O. Wisner, M. D.	Spokane	Do.
Walla Walla	J. E. Vandorpool, M. D.	Walla Walla	Do.
Whitman	R. J. Skaife, M. D.	Colfax	Do.
Yakima	Lloyd Moffitt, M. D.	Yakima	Do.
West Virginia:			
Berkeley	Claude A. Thomas, M. D.	Martinsburg	Do.
Boone	R. L. Hunter, M. D.	Madison	Do.
Fayette	H. H. Puckett, M. D.	Fayetteville	Do
Hancock	T. E. Cato, M. D.	New Cumberland	Do.
Harrison	A. J. Kemper, M. D.	Clarksburg	Do.
Kanawha	John Thames, M. D.	Charleston	Do.
Logan	T. J. Farley, M. D.	Logan	Do.
Marshall	W. G. C. Hill, M. D.	Moundsville	Do.
Monongalia	R. C. Farrier, M. D.	Morgantown	Do.
Ohio	R. M. Pedicord, M. D.	Wheeling	Do.
Preston	E. R. Davies, M. D.	Kingwood	Do.
Raleigh	W. W. Hume, M. D.	Beckley	Do.
Wood	A. D. Knott, D. P. H.	Parkersburg	Do.

[10] Bicounty project.

DEATHS DURING WEEK ENDED AUG. 31, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Aug. 31, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	6,681	6,667
Deaths per 1,000 population, annual basis	9.3	9.3
Deaths under 1 year of age	520	541
Death under 1 year of age per 1,000 estimated live births	48	51
Deaths per 1,000 population, annual basis, first 35 weeks of year	11.6	11.6
Data from industrial insurance companies:		
Policies in force	67,554,445	67,373,367
Number of death claims	10,659	11,327
Death claims per 1,000 policies in force, annual rate	8.2	8.8
Death claims per 1,000 policies, first 35 weeks of year, annual rate	10.0	10.2

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Sept. 7, 1935, and Sept. 8, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 7, 1935, and Sept. 8, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934
New England States:								
Maine	1	4			8	5	0	1
New Hampshire							0	0
Vermont					4	1	0	0
Massachusetts	2	9			13	15	1	0
Rhode Island	1	4			2	6	0	0
Connecticut	3	1			1	8	1	0
Middle Atlantic States:								
New York	24	29	[1] 3	[1] 4	81	44	5	4
New Jersey	11	2	4	7	12	9	2	0
Pennsylvania	21	23			20	70	3	0
East North Central States:								
Ohio	15	29	1	6	19	38	7	0
Indiana	32	19	39	7	3	10	2	2
Illinois	32	25	6	8	16	27	6	5
Michigan	7	4			21	8	2	0
Wisconsin	1	1	11	15	36	65	1	0
West North Central States:								
Minnesota [2]	7	5		1	4	15	2	0
Iowa	12	5	1		4	3	0	0
Missouri	23	21	13	37	4	6	2	2
North Dakota		3			5	6	0	1
South Dakota	1	4				13	1	0
Nebraska	2	9			1	2	0	0
Kansas [3]	5	5		2	5	5	0	1
South Atlantic States:								
Delaware	2				1	2	0	0
Maryland [3]	1	4	1	77	4	1	4	1
District of Columbia	13	3				1	3	0
Virginia [5]	20	31			4	19	2	1
West Virginia	29	24	30	25	6	2	1	0
North Carolina [4]	28	68	4		6	27	4	1
South Carolina	20	3	94	127	1	13	0	0
Georgia [5]	26	22					0	0
Florida [4]	7	17	2	1	2	8	0	1
East South Central States:								
Kentucky	63	51	3		3	35	0	0
Tennessee [4]	22	25	29	29	1	11	3	1
Alabama [5]	31	61	27	1	7	16	1	0
Mississippi [3]	26	15					1	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 7, 1935, and Sept. 8, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 7 1935	Week ended Sept 8 1934	Week ended Sept 7 1935	Week ended Sept 8 1934	Week ended Sept. 7 1935	Week ended Sept 8 1934	Week ended Sept. 7 1935	Week ended Sept 8 1934
West South Central States:								
Arkansas	35	1	7	3	4	-	2	1
Louisiana	23	2	17	2	7	3	0	0
Oklahoma [6]	19	5	12	18	1	-	1	0
Texas [5]	76	38	16	36	1	27	0	0
Mountain States:								
Montana	1	2	-	6	3	12	0	0
Idaho [2]	-	2	-	-	-	1	0	0
Wyoming	-	1	-	-	3	-	0	0
Colorado	7	4	-	-	4	3	1	0
New Mexico	-	1			1	1	0	0
Arizona [2]	2	2	6	3	1	4	0	0
Utah [3]	-		-	-	1	2	0	0
Pacific States:								
Washington	-	1		-	13	18	1	0
Oregon			5	8	32	3	0	0
California	28	14	15	12	73	22	3	1
Total	679	607	346	435	438	587	62	24
First 36 weeks of year	19,777	21,995	105,025	50,511	697,342	670,288	4,354	1,694

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept 7, 1935	Week ended Sept 8, 1934	Week ended Sept 7, 1935	Week ended Sept. 8, 1934	Week ended Sept 7, 1935	Week ended Sept 8, 1934	Week ended Sept 7, 1935	Week ended Sept. 8, 1934
New England States:								
Maine	17	0	11	10	0	0	3	0
New Hampshire	3	1	3	2	0	0	0	0
Vermont	4	1	1	8	0	0	4	1
Massachusetts	169	1	32	45	0	0	7	5
Rhose Island	31	0	3	2	0	0	0	0
Connecticut	38	2	8	8	0	0	1	1
Middle Atlantic States:								
New York	414	10	108	125	1	0	35	28
New Jersey	72	5	25	19	0	0	15	9
Pennsylvania	9	3	52	82	0	0	16	25
East North Central States:								
Ohio	2	15	111	138	0	1	54	68
Indiana	3	14	43	40	0	1	18	37
Illinois	22	9	130	133	0	1	47	54
Michigan	76	14	31	50	0	0	16	67
Wisconsin	4	6	59	41	0	1	6	9
West North Central States:								
Minnesota [2]	5	4	31	8	0	0	5	5
Iowa	5	4	18	19	0	0	7	12
Missouri	3	0	54	32	0	0	20	43
North Dakota	0	1	2	5	1	0	1	3
South Dakota	0	3	10	1	0	0	1	19
Nebraska	0	0	9	14	6	3	1	4
Kansas [2]	1	5	17	18	1	0	17	12
South Atlantic States:								
Delaware	0	0	4	1	0	0	1	2
Maryland [3]	11	0	18	22	0	0	16	9
District of Columbia	5	0	10	8	0	0	4	2
Virginia [3]	16	6	19	55	0	0	41	41
West Virginia	3	5	45	29	0	0	16	43
North Carolina [4]	11	1	36	46	1	0	16	15
South Carolina	1	0	7	5	0	0	24	15
Georgia [3]	0	0	9	15	0	0	16	31
Florida [3]	0	0	4	2	0	0	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 7, 1935, and Sept. 8, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934	Week ended Sept. 7, 1935	Week ended Sept. 8, 1934
East South Central States:								
Kentucky	42	18	57	42	0	2	96	77
Tennessee [4]	3	4	27	37	1	0	50	36
Alabama [5]	2	1	4	19	0	0	15	19
Mississippi [3]	0	1	9	9	0	0	13	10
West South Central States:								
Arkansas	0	1	8	5	0	0	7	16
Louisiana	2	0	3	3	0	0	25	18
Oklahoma [6]	1	0	13	4	1	0	21	23
Texas [5]	3	2	21	30	1	0	70	37
Mountain States:								
Montana	1	36	9	1	2	0	8	8
Idaho [2]	0	6	4	1	1	0	4	0
Wyoming	0	1	6	1	0	0	2	0
Colorado	1	1	21	17	0	2	5	9
New Mexico	0	0	5		0	0	2	7
Arizona [2]	1	15	2	2	0	0	5	5
Utah [3]	1	2	14	2	0	0	0	0
Pacific States:								
Washington	1	42	8	19	18	2	1	5
Oregon	0	5	14	17	3	0	5	5
California	24	49	75	64	2	0	15	7
Total	1,007	294	1,210	1,265	39	13	753	842
First 36 weeks of year	6,424	4,982	183,421	151,177	5,407	3,796	11,472	13,650

[1] New York City only.
[2] Epidemic encephalitis, week ended Sept. 7, 1935, 6 cases, as follows: Minnesota, 2; Kansas, 2; Idaho, 1; Arizona, 1.
[3] Week ended earlier than Saturday.
[4] Rocky Mountain spotted fever, week ended Sept. 7, 1935, 2 cases, as follows: North Carolina, 1; Tennessee, 1.
[5] Typhus fever, week ended Sept. 7, 1934, 36 cases, as follows: Virginia, 1; Georgia, 21; Florida, 2; Alabama, 7; Texas, 5.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May 1935										
Hawaii Territory	4	4	5		5			3	0	2
Wyoming	0	3			245		0	83	28	2
July 1935										
California	16	123	96	18	1,615	22	142	421	17	38
Montana	2	16	15	1	130		0	11	17	10
New York	48	91		11	4,599		148	872	0	51
South Carolina		204	166	1,125	12	165	9	9		110
August 1935										
Delaware	2	2			10		3	8	0	13

May 1935

	Cases
Chicken pox:	
Hawaii Territory	157
Wyoming	14
Leprosy:	
Hawaii Territory	5
Mumps:	
Hawaii Territory	67
Wyoming	3
Rocky Mountain spotted fever:	
Wyoming	17
Septic sore throat:	
Wyoming	2
Tularaemia:	
Wyoming	2
Whooping cough:	
Hawaii Territory	70
Wyoming	36

July 1935

	Cases
Actinomycosis:	
California	1
Anthrax:	
California	1
Chicken pox:	
California	989
Montana	49
New York	1,037
South Carolina	20
Dengue:	
South Carolina	3
Diarrhea:	
South Carolina	528
Dysentery:	
California (amoebic)	14
California (bacillary)	18
New York (amoebic)	3
New York (bacillary)	155
Epidemic encephalitis:	
California	8
New York	10
South Carolina	1
Food poisoning:	
California	35
German measles:	
California	594
Montana	19
New York	1,391
Granuloma, coccidioidal:	
California	4
Hookworm disease:	
South Carolina	223
Impetigo contagiosa:	
Montana	1
Jaundice (epidemic):	
California	2
Mumps:	
California	419
Montana	36
South Carolina	78
Ophthalmia neonatorum:	
California	1
New York	7
South Carolina	7
Paratyphoid fever:	
California	6
New York	27
South Carolina	3
Psittacosis:	
California	3
Rabies in animals:	
California	68
New York [1]	3
South Carolina	50
Rabies in man:	
California	1
Relapsing fever:	
California	1
Rocky Mountain spotted fever:	
California	2
Montana	21
New York	1
Septic sore throat:	
California	10
Montana	18
New York	26
Tetanus:	
California	5
Montana	1
New York	5
Trachoma:	
California	7
Montana	1
Trichinosis:	
California	2
New York	14
Tularaemia:	
California	1
Montana	7
South Carolina	1
Typhus fever:	
South Carolina	4
Undulant fever:	
California	19
Montana	1
New York [1]	24
Vincent's infection:	
Montana	3
New York	59
Whooping cough:	
California	642
Montana	199
New York	1,802
South Carolina	174

August 1935

	Cases
Delaware:	
Chicken pox	3
German measles	1
Mumps	2
Whooping cough	5

WEEKLY REPORTS FROM CITIES

City reports for week ended Aug. 31, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	0	0	1	2	0	0	0	0	0	19
New Hampshire:											
Concord											7
Nashua	0			0		0	0		0	0	
Vermont:											
Barre											
Burlington	0		0	0	0	0	0	0	3	0	5
Rutland	0		0	0	0	0	0	0	0	2	4
Massachusetts:											
Boston	1		2	10	9	13	0	7	2	16	173
Fall River	0		1	0	1	2	0	1	0	5	19
Springfield	0		0	0	0	0	0	1	1	5	26
Worcester	0		0	1	3	5	0	0	0	0	46
Rhode Island:											
Pawtucket	0		0	0	0	0	0	0	0	0	16
Providence	0	1	0	5	0	0	0	1	0	4	60
Connecticut:											
Bridgeport	0		0	2	0	3	0	2	0	5	21
Hartford	0		0	0	3	0	0	1	1	6	30
New Haven	0		0	1	0	0	0	1	0	9	39
New York:											
Buffalo	0		0	4	6	12	0	10	0	6	123
New York	14	6	2	48	60	20	0	68	19	137	1,154
Rochester	1		0	0	2	1	0	0	0	5	65
Syracuse	0		0	13	0	3	0	1	1	23	33

[1] Exclusive of New York City.

City reports for week ended Aug. 31, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
New Jersey:											
Camden	0	------	0	0	0	0	0	1	1	0	18
Newark	0	1	0	3	1	3	0	2	0	32	78
Trenton	0	------	0	0	0	0	0	2	0	2	29
Pennsylvania:											
Philadelphia	2	3	0	5	15	14	0	16	9	52	322
Pittsburgh	2	------	0	2	11	11	0	5	1	22	120
Reading	0	------	0	0	0	1	0	0	0	1	21
Scranton	0	------	------	0	------	0	0	------	0	4	------
Ohio:											
Cincinnati	------	------	------	------	------	------	------	------	------	------	------
Cleveland	1	12	0	5	12	13	0	13	3	37	167
Columbus	0	1	1	1	2	3	0	3	1	2	66
Toledo	1	1	1	1	2	3	0	3	2	9	53
Indiana:											
Anderson	0	------	0	0	0	0	0	1	0	2	11
Fort Wayne	0	------	0	0	1	3	0	1	1	0	10
Indianapolis	2	------	1	0	11	2	0	3	0	6	81
South Bend	0	------	0	0	1	0	0	2	0	0	22
Terre Haute	0	------	0	0	0	0	0	0	2	0	21
Illinois:											
Alton	8	------	0	0	1	1	0	0	0	0	10
Chicago	7	------	2	9	19	37	0	35	3	110	559
Elgin	0	------	0	0	1	0	0	0	0	4	12
Moline	0	------	0	0	0	0	0	0	0	0	7
Springfield	0	------	0	0	1	0	0	0	0	9	17
Michigan:											
Detroit	0	6	0	3	6	12	1	13	2	103	217
Flint	0	------	0	0	1	3	0	0	1	10	29
Grand Rapids	0	------	0	2	0	5	0	0	0	19	20
Wisconsin:											
Kenosha	0	------	0	0	0	1	0	0	0	1	4
Milwaukee	2	------	0	10	2	2	0	1	0	56	82
Racine	0	------	0	0	1	7	0	2	0	17	23
Superior	0	------	0	0	0	4	0	0	0	0	7
Minnesota:											
Duluth	0	------	0	0	1	0	0	1	3	0	17
Minneapolis	1	------	0	1	3	7	0	0	2	4	65
St. Paul	0	------	0	0	4	3	0	1	1	9	39
Iowa:											
Cedar Rapids	0	------	0	0	0	2	0	0	0	1	------
Des Moines	1	------	------	1	------	1	0	------	0	0	------
Sioux City	1	------	0	3	0	4	0	0	0	3	------
Waterloo	1	------	0	0	0	1	0	0	0	0	------
Missouri:											
Kansas City	2	------	0	0	4	4	0	4	1	1	71
St. Joseph	1	------	0	0	2	1	0	1	0	1	23
St. Louis	6	------	0	2	5	3	0	7	2	7	169
North Dakota:											
Fargo	0	------	0	0	0	0	0	0	0	2	4
Grand Forks	0	------	------	1	------	0	0	------	0	0	------
Minot	0	------	0	0	0	0	0	0	1	0	6
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	0	------
Nebraska:											
Omaha	1	------	0	0	0	1	0	1	0	0	45
Kansas:											
Lawrence	0	------	0	1	0	0	0	0	0	0	4
Topeka	0	------	------	0	------	0	0	------	0	4	12
Wichita	0	------	0	0	0	0	0	1	0	0	19
Delaware:											
Wilmington	0	------	0	0	2	2	0	0	0	3	19
Maryland:											
Baltimore	0	------	0	0	8	4	0	10	1	22	140
Cumberland	0	------	0	0	1	0	0	0	0	0	11
Frederick	0	------	0	0	0	0	0	0	0	0	0
District of Columbia:											
Washington	8	------	0	0	6	4	0	8	5	5	124
Virginia:											
Lynchburg	2	------	0	0	0	1	0	0	2	12	11
Norfolk	0	------	0	0	1	0	0	2	4	0	29
Richmond	1	------	0	0	1	5	0	4	2	[illegible]	56
Roanoke	0	------	0	0	0	3	0	3	0	[illegible]	10

City reports for week ended Aug. 31, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths all causes
		Cases	Deaths								
West Virginia:											
Charleston	12	------	0	0	2	1	0	0	0	0	4
Huntington	0	------	------	0	------	5	0	------	0	0	------
Wheeling	0	------	0	0	0	1	0	1	1	1	10
North Carolina:											
Raleigh	------	------	------	------	------	------	------	------	------	------	------
Wilmington	0	------	0	0	1	0	0	0	0	0	9
Winston-Salem	0	------	0	0	2	0	0	0	0	0	16
South Carolina:											
Charleston	0	------	0	0	0	0	0	1	0	0	11
Columbia	0	------	0	0	2	0	0	0	0	0	31
Florence	0	------	0	0	0	0	0	0	1	0	14
Greenville	0	------	0	0	0	0	0	1	0	0	15
Georgia:											
Atlanta	6	1	0	0	2	1	0	2	1	4	67
Brunswick	0	------	0	0	1	0	0	0	0	2	3
Savannah	4	------	0	0	1	0	0	0	1	0	17
Florida:											
Miami	8	------	0	1	1	1	0	1	0	0	23
Tampa	2	1	1	1	0	2	0	0	0	0	19
Kentucky:											
Ashland	1	------	------	0	------	0	0	------	1	0	------
Covington	0	------	0	1	0	1	0	0	0	0	------
Lexington	1	------	0	0	2	1	0	2	1	0	19
Louisville	2	------	0	1	0	7	0	9	2	1	82
Tennessee:											
Knoxville	3	------	0	1	0	0	0	2	1	0	22
Memphis	1	------	0	1	0	2	0	6	0	15	82
Nashville	2	------	0	0	2	0	0	0	1	5	43
Alabama:											
Birmingham	1	1	0	0	0	2	0	4	1	1	56
Mobile	2	------	1	0	1	0	0	3	0	0	26
Montgomery	1	------	0	0	0	1	0	0	0	0	------
Arkansas:											
Fort Smith	------	------	------	------	------	------	------	------	------	------	------
Little Rock	0	1	0	0	1	1	0	2	1	0	------
Louisiana:											
New Orleans	9	------	1	0	8	2	0	8	1	------	135
Shreveport	1	------	0	0	2	2	0	3	0	0	37
Texas:											
Dallas	6	------	0	1	2	3	0	2	0	1	60
Fort Worth	1	------	0	0	1	4	0	0	0	1	23
Galveston	0	------	0	0	1	0	0	0	1	0	11
Houston	5	------	0	0	4	2	0	5	4	0	76
San Antonio	2	------	0	0	1	0	0	4	1	0	58
Montana:											
Billings	0	------	0	0	1	0	0	0	0	2	10
Great Falls	0	------	0	0	2	1	0	0	0	9	10
Helena	0	------	0	0	0	1	0	0	0	3	1
Missoula	0	------	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	0	------	0	1	2	0	0	0	0	1	9
Colorado:											
Colorado Springs	0	------	0	0	1	2	0	1	0	2	13
Denver	9	------	0	0	3	5	0	2	1	2	63
Pueblo	0	------	0	0	0	1	0	0	0	2	5
New Mexico:											
Albuquerque	1	------	0	0	0	0	0	1	0	4	9
Utah:											
Salt Lake City	0	------	0	0	3	4	0	2	2	19	46
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	5
Washington:											
Seattle	0	------	0	3	4	5	0	2	2	13	75
Spokane	0	------	0	2	1	2	0	1	0	1	22
Tacoma	0	------	0	0	2	1	0	0	0	0	22
Oregon:											
Portland	0	------	0	9	2	7	0	0	0	0	63
Salem	0	------	------	1	------	0	0	------	0	0	------
California:											
Los Angeles	10	------	1	11	8	7	0	15	0	3	252
Sacramento	1	------	0	1	2	3	0	2	1	2	26
San Francisco	0	------	1	24	9	5	0	12	0	15	155

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City reports for week ended Aug. 31, 1935—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Maine:			
Portland	0	0	2
Massachusetts:			
Boston	1	0	75
Fall River	0	0	25
Springfield	0	0	1
Worcester	0	0	2
Rhode Island:			
Pawtucket	0	0	4
Providence	0	0	24
Connecticut:			
Bridgeport	0	0	5
Hartford	0	0	3
New Haven	0	0	3
New York:			
New York	13	2	366
Rochester	0	1	0
Syracuse	0	0	3
New Jersey:			
Newark	0	0	2
Trenton	1	0	0
Pennsylvania:			
Philadelphia	1	1	10
Ohio:			
Cleveland	0	0	5
Indiana:			
Indianapolis	0	0	2
Illinois:			
Chicago	4	3	6
Elgin	0	0	1
Michigan:			
Detroit	0	0	20
Flint	0	0	10
Grand Rapids	0	0	5
Wisconsin:			
Racine	0	0	1
Minnesota:			
Minneapolis	0	0	1
St. Paul	1	0	1
Iowa:			
Des Moines	0	0	1
Missouri:			
St. Louis	0	0	1
North Dakota:			
Minot	1	1	0
South Dakota:			
Aberdeen	1	0	0
Nebraska:			
Omaha	3	2	0
Kansas:			
Wichita	1	1	0
Maryland:			
Baltimore	3	5	4
District of Columbia:			
Washington	2	1	5
Virginia:			
Lynchburg	0	0	4
Norfolk	0	0	1
Richmond	0	0	2
Kentucky:			
Louisville	0	0	19
Tennessee:			
Memphis	0	1	0
Alabama:			
Birmingham	0	0	1
Montgomery	0	0	1
Louisiana:			
New Orleans	1	0	0
Texas:			
Galveston	0	1	0
Oregon:			
Portland	1	0	0
California:			
Los Angeles	1	0	5
Sacramento	0	0	2

Epidemic encephalitis.—Cases: Pittsburgh, 1; Toledo, 1; Chicago, 1; Detroit, 1; St. Louis, 1; Birmingham, 1.

Pellagra.—Cases: Boston, 1; Columbia, 1; Louisville, 3; Memphis, 1; Birmingham, 2; Los Angeles, 1; Sacramento, 1.

Typhus fever.—Cases. New York, 1; Charleston, S. C., 1; Atlanta, 8; Savannah, 2, Mobile, 4; Fort Worth, 3,

FOREIGN AND INSULAR

CUBA

Habana—Communicable diseases—4 weeks ended August 31, 1935.—During the 4 weeks ended August 31, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Deaths
Diphtheria	1		[illegible]	
Malaria	[1] 20	2	Tuberculosis	
Poliomyelitis	1		Typhoid fever	

[1] Includes imported cases.

Provinces—Notifiable diseases—4 weeks ended August 24, 1935.—During the 4 weeks ended August 24, 1935, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer	1			6	6	3	16
Cerebrospinal meningitis				1			1
Chicken pox				2			2
Diphtheria		3		2	1	2	8
Hookworm disease			1	3			4
Leprosy						9	9
Malaria	520	48	82	428	427	459	1,964
Measles		2	3	4			9
Poliomyelitis			1	3		4	8
Tuberculosis	2	9	18	40	23	29	121
Typhoid fever	9	90	25	77	87	27	315

SCOTLAND

Typhoid fever.—According to information dated August 16, 1935, 66 cases of typhoid fever with 3 deaths had been reported in Scotland since August 5, 1935. It appears that all the patients were members of a pilgrimage to Lourdes, France, which left Glasgow, Scotland, on July 12, 1935, on the S. S. *Athenia*. A later report also states that 40 cases of typhoid fever had been reported in Glasgow, Scotland, up to August 20, 1935.

SWITZERLAND

Infectious diseases—1934.—During the year 1934, cases of certain infectious diseases were reported in Switzerland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	43	Paratyphoid fever	28
Chicken pox	1,635	Poliomyelitis	80
Diarrhea	1	Scarlet fever	3,473
Diphtheria and croup	1,775	Shingles	112
German measles	108	Trachoma	10
Influenza	771	Tuberculosis	2,988
Lethargic encephalitis	4	Typhoid fever	98
Measles	12,798	Whooping cough	2,120
Mumps	627		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for August 30, 1935, pages 1194-1210. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued September 27, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

India.—During the week ended August 31, 1935, 1 case of cholera with 1 death was reported in Cochin, and 3 cases of cholera were reported at Negapatam, India.

Siam—Bangkok.—During the week ended August 31, 1935, 1 case of cholera with 1 death was reported at Bangkok, Siam.

Plague

Brazil—Pernambuco State.—According to information dated September 10, 1935, 204 cases of plague with 72 deaths were reported up to August 24, 1935, in the interior of Pernambuco State, Brazil.

China—Manchuria.—A report dated August 29, 1935, states that up to August 27, 1935, 78 deaths from bubonic plague were reported in the Fuyu, Shuangshan, and Changling districts of central Manchuria, China, the first cases of which occurred along the Taoan Nungan Railway.

Typhus Fever

Straits Settlements—Singapore.—During the week ended August 3, 1935, one case of typhus fever was reported at Singapore, Straits Settlements.

Yellow Fever

Brazil—Minas Geraes State—Theophilo Ottoni.—During the week ended August 31, 1935, eight cases of yellow fever were reported at Theophilo Ottoni, Minas Geraes State, Brazil.

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UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

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PUBLIC HEALTH REPORTS

VOL. 50 SEPTEMBER 27, 1935 NO. 39

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

August 11–September 7, 1935

Poliomyelitis.—The number of cases of poliomyelitis rose from 1,433 for the preceding 4 weeks to 3,625 for the 4 weeks ended September 7. The current incidence was almost three times that for the corresponding period in 1934, when an epidemic was in progress in California and the West; it was two and six-tenths times the incidence in 1933, but has not yet reached the proportions (4,986 cases) of the 1931 epidemic, which was largely in the eastern part of the United States.

An examination of the various geographic areas shows that the epidemic has been mostly confined to regions along the Atlantic coast, each State in the North Atlantic group reporting an unusually large number of cases. In the South Atlantic region, where the epidemic started, North Carolina and Virginia were the States most affected. During the current period the disease appeared in rather large numbers in Michigan (311 cases) in the East North Central region and in Kentucky (141 cases) in the East South Central area. Later reports (week ended September 14) indicate a decline in practically all of the affected areas; decreases in the prevalence of the disease normally occur at this season of the year.

Table 1 shows for each State the number of cases reported for 20 weeks since the increased incidence began, with comparative figures for the corresponding periods of 3 preceding years; it also includes weekly data for 1935.

[1] From the Office of Statistical Investigations, U. S. Public Health Service. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48, influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports. These summaries include only the 8 important communicable diseases for which the Public Health Service receives regular weekly reports from the State health officers.

TABLE 1.—*Poliomyelitis cases reported in each State during recent weeks*[1] *of 1935*

State	20 weeks ended—				Cases reported in 1935 for week ended—						
	Sept. 17 1932	Sept. 16 1933	Sept. 15 1934	Sept. 14 1935	Aug. 3	Aug. 10	Aug. 17	Aug. 24	Aug. 31	Sept. 7	Sept. 14
All States[2]	1,995	2,785	4,942	6,869	418	488	723	807	1,088	1,007	849
New England:											
Maine	14	19	8	64	2	1	6	8	16	17	12
New Hampshire	1	2	6	37	0	5	9	4	6	3	4
Vermont	1	7	6	12	0	0	0	0	0	4	2
Massachusetts	30	291	19	861	47	74	116	112	166	169	143
Rhode Island	8	12	1	196	7	8	12	39	58	31	36
Connecticut	20	40	12	243	10	22	43	40	39	38	38
Middle Atlantic:											
New York	187	969	138	2,076	104	158	244	291	460	414	285
New Jersey	203	140	48	246	7	13	19	26	35	72	54
Pennsylvania	743	227	71	104	2	8	12	11	13	9	38
East North Central:											
Ohio	47	172	128	52	1	1	9	2	14	2	10
Indiana	5	21	31	19	0	1	3	2	2	3	3
Illinois	93	123	119	124	10	13	13	9	19	22	18
Michigan	61	45	104	416	10	14	40	87	108	76	65
Wisconsin	26	14	40	40	0	1	1	10	4	4	8
West North Central:											
Minnesota	68	162	43	33	1	0	4	3	5	5	8
Iowa	22	18	17	28	0	0	8	1	4	5	4
Missouri	5	23	15	19	2	1	2	1	0	3	4
North Dakota	21	46	4	4	0	0	1	2	1	0	0
South Dakota	7	13	23	4	0	0	0	1	0	0	2
Nebraska	14	8	6	2	0	0	0	1	0	0	0
Kansas	19	30	43	10	0	2	0	0	2	1	1
South Atlantic:											
Delaware	7	13	2	4	0	1	0	0	2	0	0
Maryland	20	16	17	55	10	6	5	6	5	11	7
District of Columbia	15	2	5	51	7	4	4	7	5	5	9
Virginia	24	17	44	631	100	68	73	39	31	16	21
West Virginia	27	52	47	30	0	6	3	4	3	3	8
North Carolina	23	10	25	579	40	26	17	11	9	11	14
South Carolina	27	5	4	25	1	4	0	3	1	1	0
Georgia	5	1	11	13	1	1	1	0	0	0	2
Florida	0	4	9	11	0	2	1	1	0	0	0
East South Central:											
Kentucky	13	20	67	209	18	15	27	36	36	42	18
Tennessee	20	81	30	60	10	1	3	6	1	3	4
Alabama	13	10	32	39	1	1	2	1	4	2	1
Mississippi	9	5	14	7	1	0	0	1	0	0	0
West South Central:											
Arkansas	9	6	6	14	1	2	1	1	0	0	3
Louisiana	15	13	9	65	2	5	4	6	1	2	1
Oklahoma	14	6	8	8	0	0	0	0	0	1	0
Texas	43	26	71	37	3	1	1	4	9	3	1
Mountain:[2]											
Montana	1	3	234	3	0	0	0	0	0	1	0
Idaho	0	1	94	1	0	0	0	0	0	0	0
Wyoming	2	4	3	0	0	0	0	0	0	0	0
Colorado	2	4	11	4	1	2	0	0	0	1	0
New Mexico	3	2	7	3	0	0	0	0	0	0	0
Arizona	2	3	80	10	0	0	1	0	1	1	4
Utah	1	4	7	5	0	0	2	1	0	1	0
Pacific:											
Washington	25	28	414	12	0	1	1	2	1	1	0
Oregon	7	13	33	6	0	0	1	0	1	0	2
California	72	54	2,746	397	19	20	34	21	24	24	19

[1] See Public Health Reports for Aug. 30, 1935, p. 1166, and Aug. 2, p. 986, for preceding weekly data
[2] Nevada excluded; no data.

Meningococcus meningitis.—The incidence of meningococcus meningitis decreased further during the 4 weeks ended September 9, but the number of cases (268) was still more than double that reported for the corresponding period in 1934 and 1933 and was the highest figure for this period since 1930. Practically all sections of the country have felt the effect of the epidemiclike wave of this disease which has

been in progress since the beginning of the current year. While in most areas the peak of last winter was reached during the months of April or May, the decline has been rather slow and the number of cases in each area is well above that for the corresponding period in recent years.

Table 2 gives in 4-week periods for each geographic area the number of cases of meningococcus meningitis reported since the beginning of the current year, with comparative data for the years 1934 and 1933.

TABLE 2.—*Meningococcus meningitis cases reported in each geographic area during 1935, 1934, and 1933*

Geographic area and year	Year to date	4-week period ended—								
		Jan. 26	Feb. 23	Mar. 23	Apr. 20	May 18	June 15	July 13	Aug. 10	Sept. 7
All States: [1]										
1935	4,362	307	525	646	659	705	568	392	202	268
1934	1,702	210	227	225	219	220	178	134	130	129
1933	2,255	362	307	393	340	230	202	145	147	129
New England and Middle Atlantic:										
1935	885	42	52	111	127	155	136	109	87	66
1934	332	38	40	42	36	41	42	26	39	28
1933	461	58	58	63	72	39	44	34	48	45
East North Central:										
1935	1,076	79	120	149	189	195	128	92	67	57
1934	489	60	58	58	83	59	54	42	36	39
1933	730	115	86	137	115	89	79	51	30	28
West North Central:										
1935	507	33	81	90	75	83	62	27	30	26
1934	217	16	31	26	35	31	28	12	14	21
1933	295	53	39	63	40	34	25	13	16	12
South Atlantic:										
1935	838	54	93	121	108	150	121	77	48	66
1934	191	25	24	29	41	21	13	16	10	12
1933	219	41	43	26	30	17	16	15	16	15
East and West South Central:										
1935	647	67	124	114	101	68	63	49	32	29
1934	312	48	47	51	35	51	28	15	19	18
1933	355	68	56	60	56	35	21	20	25	14
Mountain and Pacific: [1]										
1935	409	32	55	61	59	54	58	38	28	24
1934	161	23	27	19	19	14	13	23	12	11
1933	195	27	25	44	27	16	17	12	12	15

[1] Nevada excluded; no data.

Scarlet fever.—The prevalence of this disease, which has been unusually high in all sections of the country, except the South Central, approached more closely the level of 1934 than at any time since the beginning of the year. An average increase over the corresponding period last year of approximately 25 percent was maintained during each consecutive 4-week period of the year, including the 4 weeks ended July 13. During the following 4-week period (ended Aug. 10) the increase dropped to about 10 percent, and for the period ended September 7 the number of cases totaled 3,990, as against 3,922 last year. States in the West North Central and Mountain regions continued to report a rather high incidence, but other regions closely approximated last year's figures for this period.

Measles.—Measles continued to decline during the current 4-week period. The number of cases (2,909) fell below that for the corresponding period last year (3,135) but remained well above the average for this season. Each geographic section reported a very significant decrease from the preceding 4-week period, but in the North Atlantic, East North Central, and Western regions, where the disease has been unusually prevalent, the incidence continued above the expectancy. In the West North Central area, where the incidence has also been high, the disease declined rapidly and the number of cases reported dropped to a figure (119) considerably below the numbers for recent years. The South Atlantic and South Central sections have not contributed to the current high incidence of measles, but those regions were the most affected by last year's outbreak. Since the beginning of the year the numbers of cases reported from those areas have been only about 30 percent of last year's figures.

Smallpox. The number of cases of smallpox dropped from 209 for the preceding 4-week period to 117 for the 4 weeks ended September 7. For the corresponding period in the 2 preceding years the numbers of cases were 70 and 83, respectively. The excess over last year was due to a high incidence in certain States rather than to a general increase throughout the country. Of the total number of cases, Washington State reported 26, Texas 21, Nebraska, 11, California, 9, Michigan, 7; the remaining cases were widely distributed among the other States. The States mentioned were mostly responsible for excesses over last year's figures in the geographic area in which they are located, while several States in the South Atlantic region contributed to a total of 10 cases reported from that section as against none last year.

Diphtheria.– The current incidence of diphtheria has been following very closely the low level of 1934. For the 4 weeks ended September 7, 2,056 cases were reported, as compared with 1,975, 2,692, and 2,957 for the corresponding period in the years 1934, 1933, and 1932, respectively. The South Central and Mountain and Pacific regions reported slight excesses over last year's figures, the South approximately the same incidence, while the North Atlantic and North Central regions reported fewer cases than last year.

Influenza.– The influenza situation was very favorable in all sections of the country. Increases were reported from the North and South Central regions, but they appeared to represent only the usual seasonal rise of the disease which commonly occurs at this time of the year. States along the Atlantic coast and those in the Mountain and Pacific sections reported very few cases. For the current 4-week period 1,257 cases were reported, the lowest incidence for the entire reporting area during this period in recent years.

Typhoid fever.—The incidence of typhoid fever continued below the level of recent years. For the current 4-week period the cases totaled

2,955, which represented about a 10 percent decrease from the total for the corresponding period in each of the 2 preceding years. The North Central regions reported about a 30 percent decrease from last year's figures, the Mountain and Pacific a 10 percent decline, and the Atlantic coast regions and South Central States approximately the same incidence as last year during this period.

Mortality, all causes.—The mortality from all causes in large cities, as reported by the Bureau of the Census, for the 4 weeks ended September 7 was 9.6 per 1,000 inhabitants (annual basis). The rate for the corresponding period in each of the 3 preceding years was 9.7 9.3, and 9.4, regressively.

THE BLACKTONGUE-PREVENTIVE VALUE OF 7 FOODSTUFFS

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The experiments herein reported are a continuation of the studies undertaken by the Public Health Service to determine the relative pellagra-preventive value of the individual foods commonly used in American diets. These experiments have been carried out on the dog, since canine blacktongue and human pellagra may be regarded as analogous conditions (*1*, *2*). Studies of the pellagra-preventive potency of 38 foodstuffs have been reported (*1*, *3*, *4*). The present report covers 7 additional items; namely, chicken, rabbit, pork shoulder, evaporated peaches, cottonseed meal, beets, and prunes.

The general method of conducting these experiments has been described in previous publications of this series (*2*, *5*). As in the studies previously reported, the basic diet used has been our blacktongue-producing diet no. 123 (table 1), which, except for a deficiency of the pellagra-preventive factor, is believed to be in physiological balance. When used alone, this diet leads to the production of blacktongue in any number of dogs within about 60 days. If the incorporation of a suitable quantity of a given foodstuff in this diet is followed by a significant prolongation of the time of onset of blacktongue, it is concluded that the supplement contains the blacktongue-(pellagra-)preventive factor. Whether this factor is identical with the factor in the vitamin B complex which causes growth of rats, now called vitamin G, is open to question. We have in the past used the terms synonymously on the basis that any new factor should be given a new designation, and the term "vitamin G" used for the pellagra-preventive vitamin. Until the terminology is clarified, we shall continue to use the somewhat unwieldly term "pellagra-preventive vitamin" in referring to the factor which prevents blacktongue in dogs and pellagra in man.

TABLE 1.—*Composition of basic blacktongue-producing diet No. 123* [1]

Articles of diet	Quantity	Nutrients: Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cowpeas (*Vigna sinensis*) [3]	50	10.7	.7	30.4
Casein (purified) [4]	60	52.0		
Sucrose	32			32.0
Cottonseed oil	30		30.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		96.3	64.5	358.4
Nutrients per 1,000 calories		40.1	26.9	149.3

[1] The corn meal, cowpeas (previously coarsely ground) and salt were stirred into water and cooked in a double boiler of enamelware for about 1½ hours. Then the other ingredients were well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie), and the finished mixture was served to the dog in suitable portions.
[2] Whole maize meal (white) sifted as for human consumption.
[3] The variety known as the California black-eyed pea.
[4] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

CHICKEN

The chicken used was a commercial brand of canned chicken obtained in the open market. The flesh, liver, gizzard, heart, fat, and a small amount of the gelatin with which it was canned were finely ground and incorporated in the basic diet after the latter had been cooked. The composition of the diet is shown in table 2.

TABLE 2.—*Composition of chicken diet No. 402* [1]

Articles of diet	Quantity	Nutrients: Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cowpeas (*Vigna sinensis*) [3]	50	10.7	.7	30.4
Chicken, canned	325	53.0	38.0	
Sucrose	26			26.0
Cod-liver oil	10		10.0	
Sodium chloride	6			
Calcium carbonate	3			
Total nutrients		97.3	67.5	352.4
Nutrients per 1,000 calories		40.5	28.1	146.8

[1] A commercial brand of canned chicken was used. The chicken was removed from the gelatin with which it was canned and most of the flesh removed from the bones. This, together with the liver, gizzard, and heart, skin, fat, and a small amount of the gelatin were ground fine. The corn meal, cowpeas (previously coarsely ground) and sodium chloride were cooked in tap water in a double boiler for 1¼ hours. Then the chicken and other ingredients were well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.
[2] Whole white maize meal sifted as for human consumption.
[3] The variety known as the California black-eyed pea.

A suitable portion of this diet was offered daily to each of 4 test animals—dogs 207, 233, 236, and 253. All of the dogs completed 1 year on this diet in apparent good health.

Canned chicken, in the quantity used, may therefore be regarded as a dependable source of the pellagra-preventive factor.

RABBIT

Discarded laboratory rabbits were killed by incision into the mediastinum and allowed to bleed; they were then skinned, the organs and excess fat were removed, and the carcass was cooked in a single boiler for about 2½ hours. The meat was then removed from the bones and passed through a food chopper. The pot liquor and rabbit meat were added to the basic diet, the composition of which is shown in table 3.

TABLE 3.—*Composition of rabbit diet no. 413* [1]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cowpeas (*Vigna sinensis*) [3]	50	10.7	0.7	30.4
Rabbit meat	233	66.8	13.5	
Cane sugar	32			32.0
Cottonseed oil	23		23.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		111.1	71.0	358.4
Nutrients per 1,000 calories		46.2	29.5	149.3

[1] The rabbits were killed, dressed, and heads removed. The muscle meat was boiled for 1½ hours, then stripped from the bones and passed through a food chopper. The cornmeal, cowpeas (previously coarsely ground) and sodium chloride were cooked in a double boiler, in the water in which the rabbit meat was boiled, for 1½ hours. The cooked rabbit meat and other ingredients were then well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.

[2] Whole white maize meal sifted as for human consumption.

[3] The variety known as California black-eyed peas.

(NOTE: The above diet was changed to 413-A by reducing the rabbit meat to 184 grams per ration, and the cottonseed oil to 19 grams per ration.)

A suitable portion of this diet was offered daily to each of 5 test animals—dogs 194, 264, 265, 266, and 267. After feeding this diet for 22 days it was observed that the animals were not eating a sufficient quantity. The diet was therefore changed by reducing the rabbit meat to 184 grams per ration and the cottonseed oil to 19 grams. Following these changes the diet was eaten satisfactorily.

All of the dogs completed 1 year on this diet in apparently good condition. Rabbit meat, in the quantity used, may therefore be regarded as a dependable source of the pellagra-preventive factor.

PORK SHOULDER

Small, smoked, pork shoulders bought in the open market were washed with hot tap-water and cooked in a single boiler for about 3 hours. The skin, bone, and fat were then removed and the lean meat was passed through a food chopper and incorporated in the basic diet, the composition of which is shown in table 4. A suitable portion of this diet was offered daily to each of 4 test animals—dogs 215, 257, 261, and 262.

TABLE 4.—*Composition of pork shoulder diet no. 409* [1]

Article of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cowpeas (*Vigna sinensis*) [3]	50	10.7	.7	30.4
Pork shoulder, lean	220	52.8	28.0	
Sucrose	26			26.0
Cod-liver oil	10		10.0	
Sodium chloride	6			
Calcium carbonate	3			
Total nutrients		97.1	57.5	352.4
Nutrients per 1,000 calories		40.4	23.9	146.8

[1] Lean smoked pork shoulders were boiled for 2 to 3 hours, or until thoroughly done so that the muscle meat could be easily stripped from the bones. The fat and bones were discarded and the lean muscle meat was passed through a food chopper. The corn meal, cowpeas (previously coarsely ground), and sodium chloride were cooked in tap water in a double boiler for 1½ hours. The cooked shoulder and other ingredients were then well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.
[2] Whole white maize meal sifted as for human consumption.
[3] The variety known as the California black-eyed pea.

All of the dogs completed 1 year on this diet in apparent good health. Smoked pork shoulder, in the quantity used, may therefore be regarded as a dependable source of the pellagra-preventive factor.

EVAPORATED PEACHES

A commercial brand of evaporated peaches obtained in the open market was used. The peaches were soaked overnight, passed through a food chopper, and incorporated in the basic diet, the composition of which is given in table 5. A suitable portion of this diet was offered daily to each of 5 test animals—dogs 204, 210, 236, 240, and 268.

TABLE 5.—*Composition of peach diet No. 418* [1]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Dried peaches	250	6.5	0.45	174.5
Cowpeas (*Vigna sinensis*) [2]	50	10.7	0.7	30.4
Corn meal [3]	195	16.3	9.5	144.3
Casein (purified) [4]	72	62.6		
Sugar	6			6.0
Cottonseed oil	38		38.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		96.1	63.65	355.2
Nutrients per 1,000 calories		40.0	26.5	148.0

[1] The corn meal, cowpeas (previously coarsely ground), peaches, and salt were stirred into water and cooked in a double boiler of enamelware for about 1½ hours. Then the other ingredients were well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie), and the finished mixture was served to the dog in suitable portions.
[2] The variety known as the California black-eyed pea.
[3] Whole maize meal (white) sifted as for human consumption.
[4] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

One of the test animals (dog 240) developed blacktongue in 121 days. Three died during the course of the experiment with symptoms suggesting the condition previously described by Sebrell as yellow liver (*6*). Two of these dogs (210 and 236) presented a reddening of the buccal mucosa at the time of death, which was suggestive of early blacktongue, but a definite diagnosis could not be made. The food consumption of dogs 268 and 236 during the last month of life was so low as to make impossible definite conclusions as to the effect of the diet. Dog 204 completed 1 year on the diet without showing any signs of illness, but in this case coprophagy was a complicating factor.

In view of these inconclusive results the experiment was repeated with 5 additional animals dogs 219, 235, 258, 277, and 279. Four of these animals developed blacktongue in 343, 330, 330, and 329 days, respectively. The remaining animal (dog 258) died 146 days from the beginning of the experiment and presented at autopsy the characteristic lesions of yellow liver. This animal did not show any signs of acute blacktongue at any time.

Evaporated peaches therefore contain enough of the pellagra-preventive vitamin to delay considerably the onset of blacktongue, and in the quantity used must be regarded as a fair source of the vitamin.

COTTONSEED MEAL

While cottonseed meal is not generally used as a human foodstuff, the possibility of its being of value in the treatment and prevention of pellagra was suggested by the Bureau of Chemistry and Soils of the Department of Agriculture. An experiment was therefore conducted in order to determine its possible value for this purpose.

A supply of a high-grade cottonseed meal was obtained through the courtesy of the Department of Agriculture. The meal was passed through a 40-mesh sieve, in order to remove fiber and hull, and autoclaved for 2½ hours at 15 pounds pressure to assure further its nontoxicity. It was then incorporated in the basic diet, the composition of which is shown in table 6. Our experience with autoclaved yeast indicates that autoclaving does not destroy the pellagra-preventive factor (*5*). A suitable portion of this diet was offered daily to each of 5 test animals—dogs 110, 190, 195, 223, and 226.

Four of the test animals (dogs 110, 190, 195, and 226) presented signs of an attack of blacktongue in 142, 77, 137, and 86 days, respectively. The remaining animal was removed from the experiment at the end of 175 days. Therefore, cottonseed meal prepared in the manner indicated and in the quantity used in this experiment failed to prevent the onset of blacktongue.

TABLE 6.—*Composition of cottonseed meal diet no. 365* [1]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cottonseed meal (*autoclaved*)	150	70.8	9.6	50.9
Cod-liver oil	15		15.0	
Cottonseed oil	20		20.0	
Sucrose	6			6.0
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		104.4	63.4	352.9
Nutrients per 1,000 calories		43.5	26.4	147.0

[1] The corn meal, cottonseed meal (autoclaved), and sodium chloride were cooked in tap water in a double boiler for 1½ hours. The other ingredients were then well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.
[2] Whole white maize meal sifted as for human consumption

It was decided to repeat the experiment, using a larger amount of cottonseed meal. This was considered advisable in view of the continued advocacy of cottonseed meal for the treatment of pellagra in spite of lack of accurate data on its pellagra-preventive value. A fresh batch of especially selected cottonseed meal was secured through the cooperation of the Department of Agriculture. The meal was passed through a 40-mesh sieve in order to remove fiber and hull. It was not autoclaved and received no treatment other than that given in the course of its preparation at the mill. Two hundred grams of this cottonseed meal were incorporated in the basic diet, the composition of which is shown in table 7. A suitable portion of this diet was offered daily to each of 5 test animals—dogs 269, 270, 274, 275, and 276.

TABLE 7.—*Composition of cottonseed meal diet no. 422* [1]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	200	16.8	9.4	148.0
Cornstarch	100			100.0
Cottonseed meal	200	87.8	11.0	74.0
Sucrose	35			35.0
Cottonseed oil	20		20.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		104.6	55.4	357.0
Nutrients per 1,000 calories		43.5	23.0	148.7

[1] The corn meal, cornstarch, cottonseed meal, and sodium chloride were cooked in tap water in a double boiler for 1½ hours. The other ingredients were then well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.
[2] Whole white maize meal sifted as for human consumption.

Four of the 5 test animals presented signs of an attack of blacktongue in 92, 146, 146, and 176 days, respectively. The remaining animal (dog 276) died of an extraneous condition (bronchopneumonia) 181 days after the beginning of the experiment, without at any time showing signs of blacktongue. The results of this experiment confirm those of the previous cottonseed meal experiment.

The conclusion, therefore, seems justified that, although cottonseed meal contains a sufficient amount of the pellagra-preventive factor to delay slightly the onset of blacktongue, the quantity present is too small for the material to be of any practical value in the treatment and prevention of pellagra.

BEETS

A commercial brand of canned beets obtained in the open market was used in this experiment. The entire contents of the can were passed through a food chopper and incorporated in the basic diet, the composition of which is given in table 8. A suitable portion of this diet was offered daily to each of 5 test animals—dogs 261, 278, 280, 281, and 285.

TABLE 8.—*Composition of beet diet no. 426* [1]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	360	30.2	16.9	266.4
Cowpeas (*Vigna sinensis*) [3]	50	10.7	.7	30.4
Casein [4]	60	52.0		
Cottonseed oil	30		30.0	
Cod-liver oil	15		15.0	
Beets (canned) [5]	480	7.7	.5	46.6
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		100.6	63.1	343.4
Nutrients per 1,000 calories		41.9	26.2	143.0

[1] The beets (coarsely ground), corn meal, cowpeas (coarsely ground), and sodium chloride were cooked in tap water in a double boiler for 1½ hours. The other ingredients were then well stirred in, and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.
[2] Whole white maize meal sifted as for human consumption.
[3] The variety known as the California black-eyed pea.
[4] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).
[5] Entire contents of can used.

The 5 test animals developed blacktongue in 27, 27, 29, 32, and 41 days, respectively. It therefore appears that the beets, in the quantity used, had no appreciable pellagra-preventive value.

PRUNES

A commercial brand of dried prunes obtained in the open market was used. The prunes were soaked overnight, boiled 1 hour, seeded, and incorporated in the basic diet, the composition of which is shown

in table 9. A suitable portion of this diet was offered daily to each of 5 test animals—dogs 191, 219, 235, 240, and 259.

TABLE 9.—*Composition of prune diet no. 410* [1]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	195.0	16.3	9.5	144.3
Cowpeas (*Vigna sinensis*) [3]	50.0	10.7	.7	30.4
Prunes, dried	250	5.3		183.2
Casein (purified) [4]	72.0	62.6		
Cottonseed oil	38.0		38.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		94.9	63.2	357.9
Nutrients per 1,000 calories		39.5	26.3	149.1

[1] The prunes were soaked over night, boiled for 1 hour, seeded, and cooked with the corn meal, cowpeas (coarsely ground), and sodium chloride in tap water in a double boiler for 1½ hours. The other ingredients were then well stirred in and the total weight was brought to 2,400 grams with water (so that 1 gram represented 1 calorie). The finished mixture was served to the dogs in suitable calorie portions.
[2] Whole white maize meal sifted as for human consumption.
[3] The variety known as the California black-eyed pea
[4] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

Four of the animals developed blacktongue in 44, 43, 48, and 28 days, respectively. Thus the prunes, in the quantity used, showed little or no protection against blacktongue and must therefore be regarded as containing little, if any, of the pellagra-preventive factor.

CONCLUSIONS

The pellagra-preventive value of seven additional foodstuffs has been determined by the prevention of experimental blacktongue in dogs. The results may be summarized as follows:

Rabbit meat, lean pork shoulder, and canned chicken are good sources of the pellagra-preventive vitamin.

Cottonseed meal is a relatively poor source and evaporated peaches are a fair source of the pellagra-preventive vitamin.

Prunes and canned beets contain little, or none, of the pellagra-preventive vitamin.

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(6) Sebrell: "Yellow liver" of dogs (fatty infiltration) associated with deficient diets. Natl. Inst. Health Bull. no. 162, September 1933.
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COURT DECISION ON PUBLIC HEALTH

Workmen's compensation law held not to bar action for damages because of contraction of silicosis.—(New York Court of Appeals; *Barrencotto* v. *Cocker Saw Co., Inc.*, 194 N. E. 61; decided Dec. 31, 1934.) The plaintiff sought damages from the defendant because of the contraction of silicosis while employed in the latter's factory. It was alleged that the disease was due to the defendant's failure to exercise reasonable care and to perform its statutory duties in the operation of its factory.

Silicosis was not an "injury" or "personal injury" compensable under the workmen's compensation law, nor was it included among the occupational diseases named in such law as being compensable. The compensation law, among other things, provided that the liability of an employer, prescribed by the statute, for injury or death, should be exclusive and in place of any other liability whatsoever "on account of such injury or death."

The defendant's motion to dismiss the complaint was denied in two lower courts, and the matter for decision was stated by the court of appeals as follows:

> * * * The question now arises whether the right to compensation for disability or death resulting from accidental injury under the workmen's compensation law is the sole right which an employee now has against his employer for injury suffered in the course of employment and excludes and takes the place of all common law remedies, not only for compensable injuries but for injuries entirely outside the scope of the act.

The conclusion reached by the court was that the action could be brought. The following are brief excerpts from the opinion:

> * * * Here, as we have said, the action is brought for an industrial injury entirely outside the scope of the statute. The statute provides that the statutory liability for injury or death shall be exclusive and in place of any other liability "on account of such injury or death." By no construction, even though forced, can these words be found to mean that the right to compensation in case of certain injuries should be exclusive and in place of liability for other injuries. * * *
>
> * * * There still is a field in which the statute fails to impose liability, on the part of an employer, to provide compensation for injury or death, regardless of fault; and in which an injured person may seek damages by action at law, where there has been fault. * * *

DEATHS DURING WEEK ENDED SEPT. 7, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 7, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	6,739	7,230
Deaths per 1,000 population, annual basis	9.4	10.1
Deaths under 1 year of age	498	571
Deaths under 1 year of age per 1,000 estimated live births	46	53
Deaths per 1,000 population, annual basis, first 36 weeks of year	11.6	11.5
Data from industrial insurance companies:		
Policies in force	67,556,789	67,330,690
Number of death claims	8,150	8,769
Death claims per 1,000 policies in force, annual rate	6.3	6.8
Death claims per 1,000 policies, first 36 weeks of year, annual rate	9.9	10.1

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended Sept. 14, 1935, and Sept. 15, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 14, 1935, and Sept. 15, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934
New England States:								
Maine	3				15		0	0
New Hampshire							1	0
Vermont	2				3	2	0	0
Massachusetts	6	11			17	12	2	1
Rhode Island	2				2	2	1	0
Connecticut [1]	1		1	8	4	10	0	0
Middle Atlantic States:								
New York	22	15	[2] 3	[2] 3	65	44	18	2
New Jersey	7	11	7	11	10	15	6	0
Pennsylvania	23	26			32	66	8	1
East North Central States:								
Ohio	21	34	43	25	13	8	2	4
Indiana	24	23	18	19		2	3	0
Illinois	45	43	5	18	18	34	2	8
Michigan	9	11	1		10	13	3	2
Wisconsin	2	5	28	9	44	89	2	2
West North Central States:								
Minnesota	6	1	2	2	6	24	3	0
Iowa [1]	19	3			1	5	0	0
Missouri	37	33	45	27	33	5	1	2
North Dakota	3	2			7	3	2	0
South Dakota		2					0	0
Nebraska	11	3			1	1	0	0
Kansas	10	10	2		4	3	0	0
South Atlantic States:								
Delaware		1			2	2	0	0
Maryland [3]	14	6		30	2	5	1	0
District of Columbia	15	1				2	2	0
Virginia [1]	21	45			6	10	2	1
West Virginia	32	38	28	12	3	7	2	3
North Carolina [1] [4]	41	84	3	1	2	42	0	1
South Carolina	13	16	112	74	1	1	0	0
Georgia [4]	36	25					1	0
Florida	3	10	1	1	1	2	0	0
East South Central States:								
Kentucky	29	46	7		1	21	0	5
Tennessee	39	34	17	2	2	14	7	1
Alabama [4]	34	55	31	25	2	17	0	2
Mississippi [3]	21	23					0	0
West South Central States:								
Arkansas	29	2	9	5			0	0
Louisiana	10	16	19	3	8	79	0	0
Oklahoma [5]	14	5	13	6	1		1	1
Texas [4]	41	16	16	25		10	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 14, 1935, and Sept. 15, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934
Mountain States:								
Montana	1	2	1	3	3	20	1	0
Idaho			2				0	0
Wyoming					2	1	0	0
Colorado	7	5			4	4	0	0
New Mexico	11	4		1	1	9	0	1
Arizona		2	3	3	1	28	3	0
Utah [3]					1	3	0	0
Nevada								
Pacific States:								
Washington	2				11	23	0	0
Oregon			7	16	34	2	0	0
California	31	20	9	19	60	38	5	1
Total	697	689	433	348	433	678	80	38
First 37 weeks of year	20,474	22,688	105,458	50,980	697,775	670,967	4,434	1,732

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934
New England States:								
Maine	12	0	7	13	0	0	4	9
New Hampshire	4	0		5	0	0	0	1
Vermont	2	0	1	5	0	0	0	0
Massachusetts	143	3	55	52	0	0	3	4
Rhode Island	36	0	3	7	0	0	0	1
Connecticut [1]	38	2	22	11	0	0	6	3
Middle Atlantic States:								
New York	285	14	123	121	0	0	44	31
New Jersey	54	3	43	22	0	0	8	12
Pennsylvania	38	8	119	128	0	0	52	45
East North Central States:								
Ohio	10	17	94	170	1	0	41	51
Indiana	3	2	47	37	0	1	13	15
Illinois	18	9	200	168	0	0	19	48
Michigan	65	16	55	87	0	0	8	13
Wisconsin	8	9	58	75	2	17	3	12
West North Central States:								
Minnesota	8	8	45	23	0	0	7	6
Iowa [1]	4	1	29	30	0	2	5	40
Missouri	4	4	46	30	0	1	20	49
North Dakota	0	0	10	10	1	0	2	2
South Dakota	2	2	11	1	5	0	1	5
Nebraska	0	1	20	8	0	1	0	0
Kansas	1	3	37	32	0	0	10	11
South Atlantic States:								
Delaware	0	0		3	0	0	1	8
Maryland [3]	7	3	21	15	0	0	15	17
District of Columbia	9	0	5	11	0	0	1	2
Virginia [1]	21	4	28	61	0	0	31	25
West Virginia	8	6	42	40	0	0	23	28
North Carolina [1] [4]	14	1	44	87	1	0	23	25
South Carolina	0	1	2	9	0	0	15	6
Georgia [4]	2	0	9	11	0	0	34	20
Florida	0	0	8	4	0	0	3	0
East South Central States:								
Kentucky	18	7	48	50	0	0	38	61
Tennessee	4	3	56	41	0	0	37	37
Alabama [4]	1	2	17	27	0	0	11	18
Mississippi [3]	0	1	12	20	0	0	9	10

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 14, 1935, and Sept. 15, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934	Week ended Sept. 14, 1935	Week ended Sept. 15, 1934
West South Central States:								
Arkansas	3	1	8		0	0	11	1
Louisiana	1	1	3	6	0	0	17	9
Oklahoma [5]	0	2	9	7	0	0	20	14
Texas [4]	1	13	17	17	0	8	46	17
Mountain States:								
Montana	0	19	21	11	0	0	3	3
Idaho	0	6	1		0	0	6	29
Wyoming	0	0	4	2	0	0	0	1
Colorado	0	0	13	12	0	2	0	5
New Mexico	0	2	3	6	0	0	23	7
Arizona	4	4	6		0	0	3	3
Utah [3]	0	0	16	4	0	0	0	1
Nevada	1							
Pacific States:								
Washington	0	61	17	14	5	3	6	2
Oregon	2	2	33	16	0	0	0	5
California	19	69	94	66	1	0	11	13
Total	850	310	1,562	1,575	16	35	633	725
First 37 weeks of year	7,274	5,292	184,983	152,757	5,423	3,831	12,!04	14,392

[1] Rocky Mountain spotted fever, week ended Sept. 14, 1935, 6 cases, as follows: Connecticut, 1; Iowa, 1; Virginia, 2; North Carolina, 2.
[2] New York City only.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended Sept. 14, 1935, 31 cases, as follows: North Caroli.., 3; Georgia, 22; Alabama, 4; Texas, 2.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following reports of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May 1935										
Colorado	1	40			2,134		0	847	13	3
June 1935										
Colorado		24			635		0	365	11	2
Hawaii Territory		4	2		3		0	1	0	8
July 1935										
Nevada			2		51		0	5	0	0
August 1935										
Arkansas	2	53	28	1,854	20	154	1	31	4	101
Connecticut	4	10		1	83		142	38	0	8
District of Columbia	16	49	1		8		22	19	0	[1] 15
Indiana	10	58	127	12	27		8	99	0	69
Iowa	8	17	6	11	15		13	68	10	24
Missouri	21	108	189	856	72	1	8	95	1	150
Nebraska	3	20			33		1	20	10	1
New Jersey	9	27	17	5	132		107	61	0	38
New Mexico	2	8	2	12	2	5	0	27	0	51
North Carolina	5	98	5		17	84	81	85	1	124
Ohio	11	57	65	46	122		27	252	0	143
Pennsylvania	12	122		1	306		44	334	0	78
Vermont		2			53		13	11	0	2

[1] Instead of 10 cases of undulant fever in the District of Columbia in July, Public Health Reports of Aug. ??, p. 1128, 10 cases of typhoid fever should have been published.

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May 1935

	Cases
Colorado:	
Chicken pox	292
Epidemic encephalitis	5
Mumps	197
Rocky Mountain spotted fever	3
Septic sore throat	5
Whooping cough	57

June 1935

	Cases
Colorado:	
Chicken pox	112
Impetigo contagiosa	4
Mumps	118
Rocky Mountain spotted fever	1
Whooping cough	20
Hawaii Territory:	
Chicken pox	63
Leprosy	6
Mumps	19
Typhus fever	3
Undulant fever	1
Whooping cough	76

July 1935

	Cases
Nevada:	
Tularaemia	2
Undulant fever	1
Whooping cough	1

August 1935

	Cases
Anthrax:	
Connecticut	1
Pennsylvania	1
Chicken pox:	
Arkansas	33
Connecticut	30
District of Columbia	1
Indiana	6
Iowa	2
Missouri	29
Nebraska	3
New Jersey	52
New Mexico	6
North Carolina	10
Ohio	53
Pennsylvania	133
Vermont	19
Diarrhea and enteritis:	
Ohio (under 2 years)	49
Dysentery:	
Connecticut (bacillary)	21
Missouri	65
Nebraska (amoebic)	3
New Jersey (amoebic)	4
New Jersey (bacillary)	8
New Jersey (unspecified)	1
New Mexico (amoebic)	6

August 1935—Continued

	Cases
Dysentery—Continued.	
New Mexico (bacillary)	9
New Mexico (unspecified)	70
Ohio (amoebic)	1
Ohio (bacillary)	3
Pennsylvania (amoebic)	1
Pennsylvania (bacillary)	1
Epidemic encephalitis:	
Connecticut	3
Indiana	3
Iowa	1
Missouri	2
New Jersey	1
New Mexico	1
Pennsylvania	135
Food poisoning:	
New Mexico	1
Ohio	17
German measles:	
Connecticut	16
Iowa	1
New Jersey	38
New Mexico	3
North Carolina	6
Ohio	17
Pennsylvania	105
Impetigo contagiosa:	
Iowa	7
Lead poisoning:	
New Jersey	1
Ohio	9
Mumps:	
Arkansas	30
Connecticut	38
Indiana	10
Iowa	53
Missouri	97
Nebraska	32
New Jersey	134
New Mexico	20
Ohio	157
Pennsylvania	323
Vermont	20
Ophthalmia neonatorum:	
Missouri	1
New Jersey	1
North Carolina	1
Ohio	100
Pennsylvania	7
Paratyphoid fever:	
Connecticut	23
Iowa	1
New Jersey	1
North Carolina	1
Ohio	2
Puerperal septicemia:	
New Mexico	5
Rabies in animals:	
Connecticut	1
Indiana	54
Missouri	2
New Jersey	13
Rabies in man:	
North Carolina	1
Rocky Mountain spotted fever:	
North Carolina	4
Pennsylvania	1
Septic sore throat:	
Connecticut	4
Missouri	34
Nebraska	2
New Mexico	1
North Carolina	9
Ohio	89
Tetanus:	
Connecticut	1
New Jersey	1
Trachoma:[1]	
Arkansas	1
New Jersey	1
Ohio	2
Pennsylvania	2
Trichinosis:	
Ohio	1
Tularaemia:	
Arkansas	5
Missouri	1
North Carolina	1
Typhoid fever:	
North Carolina	9
Pennsylvania	1
Undulant fever:	
Arkansas	1
Connecticut	7
Iowa	13
Missouri	7
New Jersey	1
Ohio	8
Pennsylvania	7
Vermont	2
Whooping cough:	
Arkansas	86
Connecticut	181
District of Columbia	22
Indiana	139
Iowa	59
Missouri	228
Nebraska	25
New Jersey	680
New Mexico	68
North Carolina	435
Ohio	616
Pennsylvania	1,311
Vermont	95

CASES OF VENEREAL DISEASES REPORTED FOR JULY 1935

These reports are published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State and city health officers. They are preliminary and are therefore subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

Reports from States

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	691	2.55	357	1.32
Arizona	37	.81	135	2.95
Arkansas	448	2.39	201	1.07
California	1,516	2.46	1,729	2.81
Colorado	21	.20	17	.16
Connecticut	207	1.25	157	.95
Delaware	140	5.79	33	1.36
District of Columbia	147	2.96	150	3.02
Florida	340	2.16	68	.43
Georgia	898	3.08	548	1.88
Idaho	0	0.0	0	0.0
Illinois	1,253	1.59	1,285	1.63
Indiana	220	.67	300	.91
Iowa [1]	110	.44	175	.70
Kansas	142	.75	112	.59
Kentucky	205	.77	374	1.41
Louisiana	244	1.13	146	.67
Maine	20	.25	57	.71
Maryland	783	4.69	234	1.40
Massachusetts	339	.78	594	1.37
Michigan	578	1.13	711	1.40
Minnesota	340	1.31	359	1.38
Mississippi	1,279	6.22	1,962	9.54
Missouri	613	1.67	314	.85
Montana [1]	17	.32	48	.89
Nebraska	34	.24	86	.62
Nevada [2]				
New Hampshire	3	.06	16	.34
New Jersey	624	1.47	285	.67
New Mexico [1]	68	1.56	121	2.77
New York [1]	3,558	2.72	962	.74
North Carolina	1,417	4.29	453	1.37
North Dakota	18	.26	76	1.10
Ohio [1]	596	.87	303	.44
Oklahoma [1]	169	.68	158	.64
Oregon	105	1.06	168	1.70
Pennsylvania	383	.39	221	.22
Rhode Island	102	1.45	55	.78
South Carolina [1]	247	1.41	325	1.86
South Dakota	6	.09	36	.51
Tennessee	1,036	3.87	566	2.12
Texas	414	.68	174	.29
Utah [2]				
Vermont	11	.30	37	1.02
Virginia [1]	303	1.26	209	.85
Washington [1]	130	.81	168	1.04
West Virginia	374	2.09	157	.88
Wisconsin [3]	22	.07	170	.57
Wyoming [2]				
Total	20,214	1.61	14,812	1.18

Reports from cities of 200,000 population or over

Akron, Ohio	29	1.07	33	1.21
Atlanta, Ga. [2]				
Baltimore, Md	501	6.07	162	1.96
Birmingham, Ala	153	5.42	105	3.72
Boston, Mass	148	1.87	187	2.36
Buffalo, N. Y	178	3.01	75	1.27
Chicago, Ill	709	1.99	838	2.35
Cincinnati, Ohio	82	1.76	81	1.74
Cleveland, Ohio	189	2.03	92	.99
Columbus, Ohio	52	1.70	39	1.28
Dallas, Tex	11	.38	2	.07

[1] Incomplete. [2] Not reporting. [3] Only cases of syphilis in the infectious stage are reported.

CASES OF VENEREAL DISEASES REPORTED FOR JULY 1935—Contd.

Reports from cities of 200,000 population or over—Continued

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Dayton, Ohio	7	.33	0	0
Denver, Colo.	21	.71	8	.27
Detroit, Mich.	159	.92	257	1.48
Houston, Tex	667	19.92	114	3.40
Indianapolis, Ind.	13	.34	12	.32
Jersey City, N. J	1	.03	0	0.0
Kansas City, Mo.	73	1 73	19	.45
Los Angeles, Calif.	448	3 13	378	2.64
Louisville, Ky	173	5.34	271	8.36
Memphis, Tenn.	210	7.87	59	2.21
Milwaukee, Wis	3	.05	18	.29
Minneapolis, Minn	97	1.99	134	2.75
Newark, N. J.	120	2.59	121	2.61
New Orleans, La.[2]				
New York, N. Y.	3,558	4 87	962	1.32
Oakland, Calif.	22	.73	42	1.39
Omaha, Nebr.	17	77	12	.54
Philadelphia, Pa.	160	81	18	.09
Pittsburgh, Pa.[2]				
Portland, Oreg	63	2 01	112	3.57
Providence, R I	60	2 32	37	1.43
Rochester, N. Y	82	2 43	62	1 84
St. Louis, Mo	323	3 86	170	2.03
St. Paul, Minn	41	1 45	41	1.45
San Antonio, Tex[4]				
San Francisco, Calif	65	97	112	1.67
Seattle, Wash	87	2 29	91	2.40
Syracuse, N. Y.[2]				
Toledo, Ohio	55	1 81	37	1.22
Washington, D. C.[5]	147	2.96	150	3.02

[2] Not reporting. [4] No reports received by city health officer [5] Reported by Social Hygiene Clinic.

WEEKLY REPORTS FROM CITIES

City reports for week ended Sept. 7, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	0	0	0	1	1	3	19
New Hampshire:											
Concord	0		0	0	0	2	0	0	0	0	13
Nashua	0			0		0	0		0	0	
Vermont:											
Barre											
Burlington	0		0	0	0	1	0	0	3	0	7
Rutland	0		0	0	1	0	0	0	1	2	6
Massachusetts:											
Boston	0		0	4	13	13	0	9	2	12	195
Fall River	0		0	0	1	2	0	0	0	0	31
Springfield	0		0	2	0	0	0	2	0	0	21
Worcester	0		0	1	2	6	0	2	1	4	37
Rhode Island.											
Pawtucket	0			0		0	0		0	0	11
Providence	0	1	0	2	1	0	0	2	0	1	51
Connecticut:											
Bridgeport	0		0	0	1	0	0	0	0	2	20
Hartford											
New Haven	0		0	0	0	1	0	0	0	4	23
New York:											
Buffalo	0		0	2	5	15	0	6	0	8	96
New York	19	3	3	19	50	21	0	81	26	124	1,129
Rochester	0		0	1	2	1	0	0	2	4	46
Syracuse	0		0	3	1	4	0	3	0	11	40

City reports for week ended Sept. 7, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New Jersey:											
Camden	0	1	0	0	1	2	0	0	3	1	33
Newark	0	1	0	1	2	3	0	4	0	2[illegible]	67
Trenton	0	---	0	0	0	1	0	3	1	4	34
Pennsylvania:											
Philadelphia	0	---	0	1	16	14	0	23	11	30	237
Pittsburgh	2	---	0	1	16	14	0	10	2	27	135
Reading	0	---	0	0	0	0	0	0	0	[illegible]	26
Scranton	0	---	---	0	-	1	0		0	2	-
Ohio:											
Cincinnati	--	--	---	-							-
Cleveland	1	8	1	2	9	12	0	15	3	[illegible]	165
Columbus	0	--	0	0	0	1	0	0	0	1	83
Toledo	0	---	0	2	3	5	0	4	0	4	59
Indiana:											
Anderson	0	---	0	0	0	2	0	2	0	1	11
Fort Wayne	0	---	0	0	1	0	0	0	0	1	28
Indianapolis	4	---	0	1	8	4	0	2	0	15	102
Muncie	0	--	0	1	2	0	0	1	0	0	8
South Bend	0	---	0	0	0	0	0	2	0	0	18
Terre Haute	0	-	0	1	0	0	0	0	1	0	22
Illinois:											
Alton	1		0	0	0	1	0	0	0	0	5
Chicago	6	3	0	8	27	30	0	31	0	84	561
Elgin	0	-	0	0	0	0	0	0	0	2	6
Moline	0	-	0	0	0	0	0	0	0	0	4
Springfield	0	---	0	0	3	0	0	1	1	2	18
Michigan:											
Detroit	4	1	0	4	9	3	0	14	4	72	199
Flint	0	---	1	0	1	1	0	0	0	0	33
Grand Rapids	0	---	1	0	2	2	0	0	1	5	37
Wisconsin:											
Kenosha	0	---	0	0	0	0	0	0	0	1	6
Milwaukee	0	---	0	4	1	9	0	4	0	43	87
Racine	0	---	0	0	0	3	0	1	0	6	17
Superior	1	---	0	0	0	0	0	0	0	1	8
Minnesota:											
Duluth	0	---	0	1	1	2	0	0	0	3	21
Minneapolis	1	--	0	0	3	6	0	0	2	4	88
St. Paul	0	---	0	0	2	2	0	1	0	11	75
Iowa:											
Cedar Rapids	0	---	---	0	---	0	0	---	0	0	-
Des Moines	2	---	---	1	---	5	0	---	2	0	43
Sioux City	1	---	---	0	---	3	0	---	0	2	
Waterloo	4	---	---	0	---	1	0	---	0	0	-
Missouri:											
Kansas City	1	---	0	0	3	2	0	7	0	1	90
St. Joseph	1	---	0	0	0	1	0	0	1	0	18
St. Louis	2	1	0	0	2	9	0	0	4	4	124
North Dakota:											
Fargo	0	---	0	0	1	1	0	0	0	0	10
Grand Forks	0	---	---	1	---	0	0	---	0	0	---
Minot	0	---	---	0	---	0	0	---	0	0	5
South Dakota:											
Aberdeen	0	---	---	0	---	1	0	---	0	0	---
Nebraska:											
Omaha	2	---	0	0	3	2	0	1	1	0	49
Kansas:											
Lawrence	0	---	0	0	0	0	0	0	0	0	8
Topeka	0	---	0	0	0	3	0	0	0	3	4
Wichita	0	---	0	0	1	0	0	1	0	3	18
Delaware:											
Wilmington	1	---	0	0	0	2	0	3	0	0	20
Maryland:											
Baltimore	1	1	0	2	6	10	0	15	1	31	167
Cumberland	0	---	0	0	1	3	0	0	8	0	14
Frederick	0	---	0	0	0	0	0	0	0	0	4
District of Columbia:											
Washington	13	---	0	0	8	10	0	8	4	0	141
Virginia:											
Lynchburg	1	---	0	0	0	0	0	0	3	1	10
Norfolk	1	---	0	0	0	0	0	3	1	0	31
Richmond	1	---	0	0	4	0	0	5	3	0	49
Roanoke	0	---	0	0	0	1	0	1	1	0	15

City reports for week ended Sept. 7, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
West Virginia:											
Charleston	4		0	0	1	2	0	0	0	0	23
Huntington	0			0		2	0		1	0	
Wheeling	0		0	0	0	1	0	0	1	0	13
North Carolina:											
Gastonia	1			0		0	0		0	0	4
Raleigh											
Wilmington	0		0	0	0	0	0	0	0	0	6
Winston-Salem	0		0	1	0	2	0	0	0	3	16
South Carolina:											
Charleston	0	1	0	0	1	0	0	1	2	0	25
Columbia	0		0	0	1	0	0	0	0	0	6
Florence	0		0	0	1	0	0	0	0	0	6
Greenville	0		0	0	0	0	0	0	1	0	12
Georgia:											
Atlanta	4	2	0	0	2	2	0	4	1	1	75
Brunswick	0		0	0	0	0	0	1	0	0	4
Savannah	6		0	0	1	3	0	2	0	0	30
Florida:											
Miami	1	2	0	0	0	1	0	5	1	0	36
Tampa	0		0	2	0	0	0	1	2	0	15
Kentucky:											
Ashland	1			1		0	0		0	0	
Covington	0		0	2	1	1	0	0	4	1	11
Lexington	0		0	0	0	2	0	2	0	0	20
Louisville	4	3	0	0	3	12	0	1	1	9	44
Tennessee:											
Knoxville	7		0	0	0	1	0	0	2	0	27
Memphis	3		0	0	2	3	0	1	0	10	63
Nashville	4		1	1	3	3	0	4	0	0	54
Alabama:											
Birmingham	0	1	0	1	3	1	0	2	1	0	50
Mobile	2		0	0	0	0	0	2	0	0	19
Montgomery	1			0		0	0		0	0	
Arkansas:											
Fort Smith											
Little Rock	0		0	0	1	0	0	1	0	0	3
Louisiana:											
Lake Charles	0		0	0	1	1	0	1	0	0	9
New Orleans	13		0	0	9	0	0	7	0	0	116
Shreveport											
Texas:											
Dallas	7		0	0	3	0	0	2	1	1	36
Fort Worth	0		0	0	4	0	0	3	0	0	33
Galveston	0		0	0	0	0	0	1	0	0	9
Houston	0		0	0	6	0	0	5	0	0	81
San Antonio	1		1	0	1	0	0	4	0	0	54
Montana:											
Billings	0		0	0	2	0	0	0	0	3	7
Great Falls	0		0	0	0	0	0	0	0	4	5
Helena	0		0	1	0	0	0	0	1	7	4
Missoula	0		0	0	1	1	0	0	0	0	10
Idaho:											
Boise	0		0	0	0	0	0	0	0	0	7
Colorado:											
Colorado Springs	0		0	0	2	1	0	2	0	1	19
Denver	4		0	2	5	4	0	4	1	4	60
Pueblo	0		0	0	1	3	0	0	0	0	10
New Mexico:											
Albuquerque	0		0	0	0	0	0	8	0	0	19
Utah:											
Salt Lake City	0		0	1	1	6	0	0	0	16	27
Nevada:											
Reno	0		0	0	0	0	0	0	0	0	2
Washington:											
Seattle	0		0	1	2	1	0	7	1	3	74
Spokane	0		0	1	1	0	0	1	0	0	37
Tacoma	0		0	2	2	1	0	0	0	0	23
Oregon:											
Portland	0		0	3	3	2	0	1	0	0	64
Salem	0	1		0		0	0		0	1	
California:											
Los Angeles	0	9	0	7	8	10	0	22	2	5	245
Sacramento	0		0	2	1	2	0	1	0	0	16
San Francisco	0	3	1	16	9	10	0	3	0	10	138

City reports for week ended Sept. 7, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Maine:			
Portland	0	0	4
New Hampshire:			
Nashua	0	0	1
Massachusetts:			
Boston	1	1	75
Fall River	0	0	19
Springfield	0	0	6
Worcester	0	0	2
Rhode Island:			
Pawtucket	0	0	2
Providence	0	0	19
Connecticut:			
Bridgeport	0	0	5
New Haven	0	0	5
New York:			
Buffalo	0	0	1
New York	5	6	321
New Jersey:			
Camden	0	1	0
Newark	0	0	5
Pennsylvania:			
Philadelphia	2	0	15
Pittsburgh	0	0	2
Ohio:			
Cleveland	0	0	1
Illinois:			
Alton	1	0	0
Chicago	2	0	4
Springfield	0	0	1
Michigan:			
Detroit	0	0	17
Flint	0	0	5
Grand Rapids	0	0	1
Wisconsin:			
Racine	0	0	3
Minnesota:			
Minneapolis	1	0	0
Iowa:			
Des Moines	0	0	2
Missouri:			
Kansas City	1	0	0
St. Louis	1	0	2
Maryland:			
Baltimore	4	3	9
District of Columbia:			
Washington	3	1	5
Virginia:			
Lynchburg	0	0	1
Richmond	0	0	1
Kentucky:			
Louisville	0	1	19
Tennessee:			
Memphis	0	0	1
Alabama:			
Birmingham	0	0	2
Utah:			
Salt Lake City	0	0	1
California:			
Los Angeles	1	1	7
Sacramento	1	0	1

Epidemic encephalitis.—Cases: Philadelphia, 1; Toledo, 1; Chicago, 1; St. Louis, 1.
Pellagra.—Cases. Boston, 1; Philadelphia, 1; Wilmington, N. C., 1; Atlanta, 2; New Orleans, 1; Dallas, 1.
Typhus fever.—Cases: Wilmington, N. C., 1; Atlanta, 11; Savannah, 1; Miami, 2; Montgomery, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended August 24, 1935.—During the 2 weeks ended August 24, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Bruns-wick	Quebec	Onta-rio	Mani-toba	Sas-katch-ewan	Alber-ta	British Colum-bia	Total
Cerebrospinal meningitis	1									1
Chicken pox		6		46	65	19	13	5	18	172
Diphtheria		2	5	31	8	13	2			61
Dysentery				6	5					11
Erysipelas				6	2	4	1	1	1	15
Influenza	1	7	1		1	1			1	12
Measles		3	9	49	231	6	13	5	32	348
Mumps		5			43	22	51	8	22	151
Paratyphoid fever	1				3				2	6
Pneumonia	5				11				3	19
Poliomyelitis				1	21	1		11	3	37
Scarlet fever	2	20	2	80	47	30	4	12	16	213
Smallpox								1	1	2
Tuberculosis	8	39	17	96	72	29		9	32	302
Typhoid fever	1		3	76	24	4	6	1	5	120
Undulant fever					3		4		1	8
Whooping cough		7		114	309	33	73		14	550

CZECHOSLOVAKIA

Communicable diseases—July 1935.—During the month of July 1935, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	7		Paratyphoid fever	24	
Cerebrospinal meningitis	11	2	Poliomyelitis	24	
Chicken pox	70		Puerperal fever	30	11
Diphtheria	1,439	93	Scarlet fever	1,377	19
Dysentery	73	8	Trachoma	99	
Influenza	49	1	Typhoid fever	489	34
Lethargic encephalitis	3	3	Typhus fever	33	2
Malaria	455				

ITALY

Communicable diseases—4 weeks ended July 21, 1935.—During the 4 weeks ended July 21, 1935, cases of certain communicable diseases were reported in Italy as follows:

Disease	June 24–30		July 1–7		July 8–14		July 15–21	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	28	25	40	38	23	22	35	32
Cerebrospinal meningitis	8	8	15	13	6	6	6	6
Chicken pox	301	148	266	139	279	140	116	80
Diphtheria and croup	319	174	289	164	296	171	275	165
Dysentery	19	15	20	11	41	21	35	22
Hookworm disease	11	10	21	10	34	12	17	14
Lethargic encephalitis	2	2	1	1	1	1	1	1
Measles	1,774	383	1,757	386	1,483	340	1,001	296
Paratyphoid fever	81	46	68	51	110	88	138	97
Poliomyelitis	13	12	21	17	29	22	16	14
Puerperal fever	27	21	32	30	27	25	38	33
Scarlet fever	307	105	293	119	239	116	216	112
Typhoid fever	1,045	205	2,297	209	2,136	341	1,380	410
Undulant fever	76	55	77	58	66	47	60	47
Whooping cough	308	117	447	149	343	117	422	144

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service American consuls International Office of Public Hygiene Pan American Sanitary Bureau health section of the League of Nations and other sources The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given

CHOLERA

[C indicates cases D deaths P present]

Place		Jan 27–Feb 23 1935	Feb 24–Mar 30 1935	Mar 31–Apr 27 1935	Apr 28–May 25 1935	June 1935: 1	8	15	22	29	July 1935: 6	13	20	27	August 1935: 3	10	17	24
Ceylon																		
Colombo	C	22	5														-	-
	D	17	3															-
Peliyagoda	C	22																-
	D	17																- -
China																		
Amoy	C										1							-
Canton	C				1													
Swatow	C				2													
India	C	14 613	20 283	23 104	19 176	5 091	5 453	5 065	4 565	4 205	4 362	5 378	7 032					
	D	7 696	10 234	12 670	10 447	2 825	3 004	3 031	2,636	2 344	2 288	2 924	3 051					
Assam	C	127	330	2 038	2 405	398	412	242	111	49	92	75	57	26	32	261	562	440
	D	82	169	1 204	1 465	209	232	122	77	26	47	53	26	20	12	121	241	263
Bassein	C	6	4	21	22		3			11								
	D	4	2	14	20		1											
Bombay Presidency	C	150	234	146	232	49	53	58	23	33	130	209	353	636	1 039			
	D	59	98	66	107	19	21	19	13	12	54	94	128	252	434			
Bombay	C		6	1								4	1	2	2			1
Calcutta	C	444	838	782	825	101	104	146	149	204	191	164	94	73	56	51	36	39
Chittagong	C	4	14	19	34	3	12	4	4	6	2	1	3	2		4	11	1
Madras Presidency	C	6,475	3 775	2 432	1 478	419	643	555	499	447	542	596	749					-
	D	3 340	1 92	1 215	782	209	272	223	195	223	222	271	335					-
Madras	C	6	3	2			2	3	6	4	4	12	23	45	63	23	12	18
	D	3	1					2	2	1	2		6	15	23	13	5	7
Mergui	C	2																- -
Moulmein	C	26	8	6	1			13	1	4					1			-
Negapatam	C	2	14	10														-
Punjab	C				7	2	31	19	9	81	38	96	90	28	10	86	142	155
Rangoon	C	34	9	16	11		2	2	2			2	11					- -
Tuticorin	C		1	37	6													-
Vizagapatam	C														1			-
India (French)																		
Chandernagor	C		17	62	15	2	4	1				3		14	12			-
Karikal	C	28	17	1														-
Pondicherry	C	27	9	12	31	6								2	5			-
Indo-China (see also table below)																		
Pnom Penh	C	1	1					1									1	-
Varela	C						1											-

Philippine Islands: Rizal Province	C								2	1					1			
	D									1								
Siam:																		
Bangkok	C		1															
Bejrpuri Province	C																	6
Kanchanapuri Province [3]	C													6	6	3		
Nagara Rajsima—Roy Ech	C		13															
	D		2															
Rajpuri Province	C														6	5	28	28
Smudsagara Province	C															1	3	2
Smudsongram Province	C														1	2	13	17
On vessels:																		
S. S. *Tilawa* at Cocanada	C	[4] 1																
S. S. *Santhia* at Rangoon from Calcutta	C	1																
S. S. *Incomati* at Colombo	C		1															
	D		1															
S. S. *Pasha* at Rangoon from Moulmein	C		1															
S. S. *Khandalla* at Rangoon	C		1															
S. S. *Juna* at Moulmein from Mergui	C		1															
S. S. *Karoa* at Rangoon	C		1															
S. S. *Ethiopia* at Madras from Rangoon	C			1														
	D			1														
S. S. *Ellenga* at Rangoon	C			1														
S. S. *Bodnant* at Calcutta	C				1													
S. S. *Baron Napier* at Calcutta	C				2													
S. S. *Barjora* at Calcutta	C						1											
S. S. *Rajula* at Penang	C									[4] 1								
S. S. *Santhia* at Rangoon from Calcutta	C											1						
S. S. *Kuala* at Penang from Moulmein	C												1					
S. S. *Cape St. Francis* at Rangoon from Calcutta	C												1					

Place		April 1935			May 1935			June 1935			July 1935		
		1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31
Indo-China (French) (see also table above):													
Cambodia [5]	C	1	1	2	17	8	1	8	9	6			
	D	1	1	2	12	5		3	6	1			
Cochin-China [5]	C	1	1	1	3		5	7	5	11	2		2
	D	1	1	1	2		4	7	3	3	2		2

[1] Imported.
[2] For 2 weeks.
[3] During the period April 20 to July 9, 1935, 98 cases of cholera with 95 deaths were reported in Kanchanapuri Province, Siam.
[4] Suspected.
[5] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended— June 1935: 1	8	15	22	29	July 1935: 6	13	20	27	August 1935: 3	10	17	24
Argentina (see also table below):																		
Pampa Territory—																		
Leventue.[2]																		
Victoria	C				1													
	D				1													
San Luis.[3]																		
Azores. (See table below.)																		
Bechuanaland Protectorate	C				2													
Plague-infected rats					P													
Belgian Congo	C		1									1		2		2		
Bolivia: Tomina Province. (See table below.)																		
Brazil:																		
Alagoas State.[4]																		
Bahia State.[4]																		
Ceara State.[4]																		
Pernambuco State.[4]																		
British East Africa:																		
Kenya	C		2		11	1	1		1	1	2	2	3	14	5	6	6	
Tanganyika	C		1															
Uganda	C	50	27	95	135	65	87	42	60	86	64	59	59	58	51	38	60	
	D	49	27	90	134	64	83	41	58	78	62	50	53	50	51	36	58	
Ceylon: Colombia	C	2	4	2	4	1		1	1			2	1	2	1		2	
	D	2	4	1	4	1		1	1			2	1	2	1		2	
Plague-infected rats			4	14								1	1	1				
China (see also table below):																		
Amoy	C		[5] 1		[5] 1													
Fukiang Province—Chuanchow.[6]																		
Manchuria:[7]																		
Dutch East Indies:																		
Cheribon	C	[5] 1																
West Java	C	1,795	1,634	678	656													
	D	1,794	1,633	678	651													

Ecuador (see also table below):																		
Guayaquil	C			1												1		
	D			1														
Loja Province—Celica	C												1					
Egypt:																		
Alexandria	C				1													
Plague-infected rats		P	P	P	P		P		P		P		P		P			
Asyut	C		3	4	12			1		2	2							1
Girga	C	1	1		1		1											
Minya	C							2	1									
Qena	C							1										
Hawaii Territory:																		
Hawaii Island—Hamakua district—Plague-infected rats					1					1								
Kalopa—Plague-infected rats													3			1		
Paauhau	C		1															
	D		1															
Plague-infected rats			2															
Paauilo—Plague-infected rats											1							
Pohakea—Plague-infected rats				1														
Maui Island—Makawao district—Kahului (9-10 miles from)—Plague-infected rats			2	1											2			
India	C	6,863	9,112	6,172	2,570	97	80	49	15	20	22	36	34					
	D	3,882	5,214	3,907	2,037	75	52	35	7	14	15	20	20					
Bassein	C	1	6	8	4	1		1		2	2	1	1					1
Plague-infected rats			1						1			1	2		1			1
Bombay Presidency	C	1,233	974	306	93	6	4		2	2	2	11	14	38	22			
	D	686	548	174	46	2	3	1	1	1	2	4	8	22	11			
Madras Presidency	C	161	112	8	1	2	1			2				9				
	D	96	54	10		1	1							2			3	
Mandalay	C	2																
Moulmein	C		[5]1	2	1													
	D		[5]1		1													
Northwest Frontier Province	C		15															
	D		7															
Punjab	C	147	343	434	548	24	12	3	1									
	D	61	195	223	327	17	11	3										
Rangoon	C	[5]1	1	1	1			1			1	1	1	5	2	2	2	
Plague-infected rats			1		2									2	1			

[1] Including plague in the United States and its possessions.
[2] A report dated Aug. 8, 1935, states that 4 cases of plague occurred at Leventue, Pampa Territory, Argentina, during 2 months.
[3] A report dated Aug. 2, 1935, states that plague-infected rats are present at San Luis, Argentina.
[4] Reports of plague in Brazil have been received under the dates indicated, as follows: July 25, 1935, 4 cases at Vicosa, Alagoas State; July 2, about 16 deaths in Fiera Santanna Bahia State since Jan. 1; July 26, 10 cases in Ceara State since Jan. 1; Sept. 10, 204 cases with 72 deaths in Pernambuco State up to Aug. 24.
[5] Imported.
[6] A report dated July 4, 1935, states that 76 cases of plague with 58 deaths were reported at Chuanchow, Province of Fukiang, China.
[7] A report dated Aug. 29, 1935, states that up to Aug. 27, 78 deaths from bubonic plague were reported in the Fuyu, Shuangshan, and Changling districts of central Manchuria, China.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended— June 1935: 1	8	15	22	29	July 1935: 6	13	20	27	August 1935: 3	10	17	24
Indo-China (see also table below):																		
Bentre	C		1															
Longxuyen	C						1											
Pnom-Penh	C				1													
Saigon and Cholon	C				1				2							1		
Tanghai Island	C			12														
Tayninh	C						1											
Iraq:																		
Baghdad	C				3					1	1		1			1	1	
Baghdad Province	C				1													
Libya: Province of Tripoli—Tagiura	C												1					
Madagascar. (See table below.)																		
Morocco:																		
Draa boundaries—Tighmert	C										6		1					
Mogador	C													9				
	D													3				
Saffi Region	C		9	14	1													
	D		5	11	1													
Peru. (See table below.)																		
Senegal. (See table below.)																		
Siam:																		
Nagara Rajsima	C	1																
Rajpuri	C		1															
South-West Africa. (See table below.)																		
Tunisia: Tunis	C								1			1		1		1		1
	D								1					1				
Plague-infected rats		1			2		2											
Union of South Africa:																		
Cape Province	C	3	5	4	17													
Orange Free State	C	39	9	39	6													
Transvaal	C		23	2	1													

United States																	
California—Plague infected ground squirrels																	
Lassen County								1	1		1						----
Modoc County			3	26	32	7	13	13									----
San Luis Obispo County			1	[8] 1													----
Montana — Dillon — Plague infected ground squirrels												1					---
Oregon—Plague-infected ground squirrels																	
Grant County												7					----
Lake County				2		1											-
Wallowa County											3	[9] 3					

Place		February 1935	March 1935	April 1935	May 1935	June 1935	July 1935
Argentina (see also table above)							
Jujuy Province	C						1
Pampa Territory—Victorica	C					2	
Santa Fe	C	1	1				
Santiago de Estero Province—Frias	C					2	
Azores	C	3				1	
Bolivia Tomina Province	C	4	4				
China Kwangchowan	C			20			
	D			13	9		
Ecuador							
Chimborazo Province	C	4					
Loja Province	C	18	1	6	4		
Indo China (see also table above)							
Cochin China	C		1	2	1	[illegible]	
Naotchao Island	C		20	18			
Madagascar (central region)	C	491	211	209	128	9	
	D	472	203	199	124	92	

Place		February 1935	March 1935	April 1935	May 1935	June 1935	July 1935
Peru	C	15	14	13	10	4	4
Lambayeque Department	C			1	1		
Libertad Department	C	9	5		3		2
Lima Department	C	6	7	12	6	4	2
Callao	C	3	2			1	
	D	2	2			1	
Plague infected rats		4		P			
Lima	C	3	2	9	6	1	1
	D		1	7	4	1	
Plague infected rat		5		P			
Senegal							
Dakar [8]	C	1	2	7	10	19	25
	D	1	2	4	8	13	15
Louga [9]	C				1		
Rufisque [9]	C			17	10	8	2
Thies [9]	C			3	19	20	17
Tivaouane [10]	C			5	30	48	42
Southwest Africa Ovamboland	C	[11] 88	29		[12] 34		

[8] Plague-infected wood rat
[9] Includes 1 suspected plague infected squirrel
[10] Reports incomplete
[11] For January and February
[12] For April and May

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Jan. 27–Feb 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended— June 1935 1	8	15	22	29	July 1935 6	13	20	27	August 1935 3	10	17	24
Algeria:																		
Algiers Department	C							1				1						
Constantine Department	C	1	2		1				2									
Belgian Congo. (See table below.)																		
Bolivia. (See table below)																		
Brazil:																		
Porto Alegre (alastrim)	C	4																
Rio de Janeiro	C						1											
British East Africa:																		
Kenya	C				2					2	1			1				
Tanganyika	C	3	26	3	3		2	17	37	42	25	28	19	24	16	11		
Uganda	C				1													
British Guiana	C				P		[1] 40		P									
British Somaliland	C	29	26	37	47	3	1			21	2	1	13			3		
British South Africa: Northern Rhodesia	C	25	27		4	2												
Canada:																		
Alberta	C																	[2] 1
British Columbia	C																	[2] 1
Manitoba	C													[2] 1				
Ontario	C	2		[2] 2		[2] 1						[2] 1		[2] 1				
Quebec	C													[2] 2				
Saskatchewan	C			[2] 1		[2] 1												
Ceylon:																		
Colombo	C	1			2													
Galle	C		14															
Welitara	C		50															
Chile: Chuquicamata	C														1			
China:																		
Amoy	C		7	4		1	1	1		1	1			1				
Canton	C	6	12	2														
Dairen	C	1	4	4	21	4	4	4	5	12	2							
Foochow	C	P	P	P	P	P		P		P		P		P		P		
Hangchow	C		3	2	1	1	1		1	[illegible]	1							
Hankow	C	15	14	11	11	1		1	1	1								
Hong Kong	C	9	14	12	10			1										

Macao	D	53	23	2	1													
Nanking	C	1	5		2		1					1	2					
Shanghai	C	4	7	3	12			3	5	4		2			1	1	3	
Swatow	C	1	2					1	2									
Tientsin	C	11	10	8	2	1	2	2	2									
Tsingtao	C	17	16	13	9	2	1											
Chosen. (See table below.)																		
Colombia	C	23	8	25	26	31			9	4								
Barranquilla	C				1													
Bogota	C				3												9	
Dahomey. (See table below.)																		
Egypt:																		
Dakahliya	C	87	4	20	13			2										
Gharbiya	C		3				1											
Suez	C		1															
Provinces	C	3	21		1		1											
Eritrea	C		5															
France. (See table below.)																		
French Somaliland	C	16	14	1														
Great Britain: England and Wales	C									1								
Greece: Salonika	C	2	5	1	14		7	19	19	19						2	2	
Guatemala. (See table below.)																		
Honduras: Tela	C	8		6		P	P	4			P		P	P				
India	C	31,533	47,384	45,558	37,507	7,739	7,746	5,423	5,018	4,227	3,573	3,528	3,292					
	D	6,726	9,464	9,637	8,423	1,827	1,741	1,364	1,227	1,066	901	862	829					
Assam	C	27	47	32	56		24		3	1		1	5		7	11	17	57
Bassein	C				[3] 1													
Bombay Presidency	C	7,778	11,693	10,497	7,958	1,303	1,259	1,073	701	710	635	522	515	601	409			
	D	1,445	2,241	1,970	1,430	220	235	201	142	159	133	128	105	105	91			
Bombay	C	235	441	455	284	53	52	53	42	39	30	28	23	21	20	12	10	
	D	114	262	257	176	37	29	39	24	30	22	14	15	18	10	8	5	
Calcutta	C	170	429	433	246	41	33	17	21	16	15	15	13	13	7	14	11	11
	D	103	241	326	188	34	30	15	15	15	12	9	11	8	4	9	4	8
Chittagong	C	[1] 1	[2] 2															
Cochin	C	6	5	2														
Karachi	C	32	39	43	23	9	2	3	4	8	2	2	2	1	2	2		1
Madras Presidency	C	4,939	6,493	4,366	2,694	654	699	620	661	556	500	740	609	766				
	D	835	972	720	559	146	107	116	138	117	68	112	108	114				
Madras	C	48	49	47	22	4	5	4	11			2	4	4	1	3	3	2
Moulmein	C	[3] 1	2		1			[3] 2		3	5			1	2		4	8
Negapatam	C	43	61	20	13	4	1	2	1		3	1	1	1	13	1		
Punjab	C	193	212	133	443	82	72	85	66	125	71	25	50	22	30	12	10	14
Rangoon	C	77	216	95	59	5	7	3	3	7	4	6	4	2	1	2	2	2
Tuticorin	C		1	28	5	5			2	4		14	4	1	8	3		9
Vizagapatam	C	133	144	119	58	9	15	7	3	6	8	1	4	1	6		1	2
India (French):																		
Chandernagor	C	1	6	19	4	3		2			1	2						
Karikal	C	11	14	32	19	4	4	3	14	14	1	3	9	8				
Pondichery	C	78	110	96	59	20	10	8	15	8	8	10		[3] 32	9			
	D	72	91	73	51	16	5	7	11	9	8	10		23	8			

[1] For 4 weeks.
[2] For 2 weeks.
[3] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended— June 1935 1	8	15	22	29	July 1935 6	13	20	27	August 1935 3	10	17	24
Indo-China (see also table below):																		
Haiphong	C		3	4	7	1		1		1		2			1			
Pnom-Penh	C		8															
Tourane	C	5	6															
Iran	C	7	1	1	11		3	4									1	
Teheran	C				2			3				1						
	D				2			1										
Iraq	C	7	6	11	18					3					4			
Arbil	C	4		2	1											1		
Baghdad	C						1											
Basra	C			2														
Mosul liwa	C		9	2														
Japan (see also table below)	C				23													
Kawasaki	C																	
Kobe	C	1						1										
Mizuna Migifu Prefecture.[4]																		
Nagasaki	C	1	3															
Nagoya	C						1	4										
Osaka	C				1													
Taiwan	C			1														
Lithuania	C												1					
Mexico:																		
Chihuahua	C	8	18	11	[5] 2													
Guadalajara	D				1		2	1		2		1	1					1
Mazatlan	C		1	1														
Mexico, D. F.	C	108	161	54	108	24	35	19	36	21	13	10		9	18			
Monterrey	C		1	2														
San Luis Potosi	D			1										2			2	
Vera Cruz	C		[3] 1															
Morocco. (See table below.)																		
Mozambique. (See table below.)																		
Nigeria	C	372	514	399	292	289	41	59		[illegible]	122	42	251	57				
Lagos	C	1				1												

Niger Territory. (See table below.)																		
Nyasaland. (See table below.)																		
Palestine	C	4	2		3													
Peru. (See table below.)																		
Poland	C		1									1						
Portugal (see also table below):																		
Lisbon	C		5	2		1							1			1		
Oporto	C				1	1					1			1				
Portuguese East Africa	C			2	7													
Salvador	C	74																
Saudi Arabia	C		48		24	13				1	1		[2] 6		1			
Siam	C	2																
Bangkok	C	1									4		2					
Sierra Leone	C	295	123	196	64		[2] 17		[2] 14		[2] 37		[2] 10		[2] 95			
Freetown	C										[2] 2		[2] 4		[2] 2			
Spain	C	15	34	36	38	8	6	14	9	8	17	4	9	8		5	2	3
Straits Settlements: Singapore	C			7	6	1			4	2	2	3	7	4	2	4	1	2
Sudan (Anglo-Egyptian)	C	9	8	23	6	2							1	1	3	1		3
Syria:																		
Damascus	C	2																
Provinces	C	4	2	1														
Tunkisia	C				1													
Turkey. (See table below.)																		
Union of Soviet Socialist Republics. (See table below.)																		

On vessels:

S. S. *Hosang* at Singapore from Osaka	1 case	Feb. 2, 1935
S. S. *Rhona* at Port Swettenham from Madras	1 case	Feb. 22, 1935
S. S. *Mongolia* at Suez from Australia	1 case	Feb. 24, 1935
S. S. *Ellenga* at Rangoon	1 case	Feb. 26, 1935
S. S. *Suisang* at Singapore from Hong Kong	1 case	Feb. 27, 1935
S. S. *Empress of Britain* at Singapore from Bombay	1 case	Mar. 3, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	Mar. 11, 1935
S. S. *Kutsang* at Hong Kong	1 case	Mar. 14, 1935
S. S. *Tatsuta Maru* at San Francisco	1 case	Mar. 14, 1935
Do	1 case	Mar. 15, 1935
S. S. *Pendeen* at Port Said from Odessa	1 case	Mar. 16, 1935
S. S. *Anhui* at Singapore from Hong Kong	2 cases	Mar. 22, 1935
S. S. *Van Heutsz* at Singapore from Amoy	1 case	Mar. 26, 1935
S. S. *Mulbera* at Aden	1 case	Mar. 28, 1935
S. S. *Anshun* at Swatow from Hong Kong	1 case	Mar. 28, 1935
S. S. *Varsova* at Karachi	1 case	Mar. 30, 1935

On vessels—Continued.

S. S. *Jinkai Maru* at Singapore from Miike	1 case	Apr. 3, 1935
S. S. *Ozarda* at Tuticorin from Akyab	1 case	Apr. 3, 1935
S. S. *Ekma* at Rangoon from Calcutta	1 case	Apr. 12, 1935
S. S. *Ipoh* at Penang from Singapore	1 case	Apr. 12, 1935
S. S. *Hong Peng* at Singapore from Amoy	1 case	Apr. 17, 1935
S. S. *Anhui* at Singapore from Hong Kong	1 case	Apr. 18, 1935
S. S. *Jalagopal* at Rangoon from Chittagong	1 case	Apr. 19, 1935
S. S. *Nagasaki Maru* at Nagasaki from Shanghai	1 case	May 10, 1935
S. S. *Karoa* at Singapore from Calcutta	1 case	May 29, 1935
S. S. *Anshun* at Singapore from Hong Kong	1 case	June 1, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	June 4, 1935
S. S. *Van Heutsz* at Singapore from Amoy	1 case	June 18, 1935
S. S. *Chitose Maru* at Nagasaki from Dairen	2 cases	July 2, 1935
S. S. *Perala* at Aden from Massawa	1 case	July 13, 1935
S. S. *Hong Kheng* at Singapore from Amoy	2 cases	Aug. 1, 1935
S. S. *Barenfels* at Gibraltar	1 case	Aug. 23, 1935

[2] For 2 weeks.
[3] Imported.
[4] A report dated June 11, 1935, states that 10 deaths from smallpox had occurred at Mizuna Migifu Prefecture, Japan.
[5] For 3 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		February 1935	March 1935	April 1935	May 1935	June 1935	July 1935
Belgian Congo (see also table above)	C	58	95	151	165	108	------
Bolivia	C	42	42	36	33	44	47
Chosen	C	179	178	211	157	102	------
Dahomey	C	4	16	------	------	------	------
Finland	C	------	------	1	------	1	------
France	C	137	78	8	15	57	60
Guatemala	C	2	1	------	------	------	------
Indo-China (see also table above)	C	582	601	552	303	210	203
	D	69	53	92	53	57	31

Place		February 1935	March 1935	April 1935	May 1935	June 1935	July 1935
Japan (see also table above)	C	8	------	6	45	26	------
Morocco	C	------	3	8	13	12	5
Mozambique	C	1	4	3	------	------	------
Niger Territory	C	------	------	246	797	------	------
Nyasaland	C	13	26	2	1	37	------
Peru	C	6	16	15	28	3	------
Portugal (see also table above)	C	55	43	25	41	76	------
	D	9	2	1	5	5	------
Turkey	C	19	28	1	13	30	------
Union of Soviet Socialist Republics	C	375	284	144	------	------	------

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

Place		Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended— May 1935 4	May 11	May 18	May 25	June 1935 1	June 8	June 15	June 22	June 29	July 1935 6	July 13	July 20	July 27	August 1935 3	Aug. 10	Aug. 17
Algeria:																				
Algiers Department	C	1	12	18	3	6	10	19		4		28	11	5	11	2				
Algiers	C						1	1	1		1									
Constantine Department	C	25	58	84	1	3	8	11	7	18	8	37	27	17	6	8	5		1	1
Constantine	C	6	4	3			2													
Philippeville	C								3	1		1			1	1				
Oran Department	C		11	3			2		1		1	1	1	2		15				
Southern Territories	C		11	3		6		14												
Belgian Congo	C		1																	
Bolivia. (See table below.)																				
British East Africa: Uganda	C	4	1																	
Bulgaria	C	1	7	2																
Chile	C	575	533	333	114			[1] 300		[2] 142				[3] 273	89					
Concepcion	C		8	28	9			[1] 33		[2] 18				[3] 14	16					
Iquique.[4]																				
Santiago	C		46	207	67			[1] 148						[3] 149	49					
Valparaiso	C	7	5	3	4			1								1		2	2	1
China:																				
Canton	C						1													
Hangchow	C		1										2							
Hankow	C													1		1				
Harbin[5]	C			5	4	7	3	6	2											
Nanking	C		1		1			1		1									1	
Shanghai	C		3					1		1			1		1		1			
Tientsin	C				1	1	2	1	1	3		1								
Tsingtao	C			2								1		1						
Chosen. (See table below.)																				
Colombia: Pamplona	C																		1	

[1] For 3 weeks.
[2] For 2 weeks.
[3] For 4 weeks.
[4] For the week ended Mar. 9, 1935, 11 cases of typhus fever were reported at San Jose nitrate camp about 42 miles from Iquique, Chile.
[5] A report dated June 25, 1935, states that about 400 cases of typhus fever occurred at Harbin, Manchuria, China.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths, P, present]

Place		Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended— May 1935 4	May 11	May 18	May 25	June 1935 1	June 8	June 15	June 22	June 29	July 1935 6	July 13	July 20	July 27	August 1935 3	Aug. 10	Aug. 17
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	5	7	21	4	4	4	8	2	2	3	2	3	1	2		1			
Aswan	C		24	9	16	17	7	1	1	1										
Asyut	C	1	11	1										1	1	1		1		1
Beheira	C	162	223	243	55	41	45	20	13	15	12	14	5	8	4	5	2	3	3	1
Beni-Suef	C	3	2	1		1		1		1	1				1			1		
Cairo	C	7	5	6		1	2	2		1						1			1	
Dakahliya	C	108	64	14	1	2		1			2			2						
Faiyum	C												1							
Gharbiya	C	236	224	180		45	51		36	18	33	17	15	10	18	4	4	3	4	5
Girga	C		7	2																
Minufiya	C	33	84	125	9	18	11	6	7	5	5	5	5	3	9	3	5		1	
Minya	C		1	4	2		2		1			1	2			2			1	
Port Said	C	1	2			1								1	1					
Quena	C		4		1		2		1											
Sharkiya	C	32	61	20	6					2	4		3	1	1	1	1			
Suez	C		1																	
Provinces	C	581	738	675	154	135	131	82	63	48	64	43	37	26	40	17	15	8	11	8
Greece. (See table below)																				
Guatemala. (See table below.)																				
Hawaii Territory—Honolulu	C													1						
Hungary	C	1		4			13	4		5										
Iran	C	60	106	132	26	33	18	11	33	21	17	14	13	7		16	6	4	3	6
Teheran	C		4	1	1	6	8		2	7	3	5	5	4		5	5			
Iraq: Sulaimani liwa	C			42	8	1		5	3	2	2	2								
Irish Free State:																				
Cork County—Castletown	C		1				1													
Waterford County—Lismore	C									1										
Japan: Tokyo	C									4	7	1	1	1						
Latvia. (See table below.)																				
Libya: Tripolitania	C	2	4																	
Lithuania	C	40	74	42	2	19	14	2	6	6	2	3	4	1	6	3	2	3		

Mexico (see also table below):																				
Guadalajara	D												1			1				
Mexico, D. F.	C	49	72	49										14	20		60			
Progreso	D		1																	
Torreon	C	1																		
Morocco	C	24	20	112	18	28	21	10	19	19	16	16	16	14	24	16	8	10	5	1
Palestine:																				
Haifa	C	2	1	2		[a] 1	1	1		3				[a] 2		1				2
Jaffa	C			1		4	[a] 1													
Panama Canal Zone. (See table below.)																				
Paraguay: Asuncion	D														1					
Peru. (See table below.)																				
Poland	C	291	580	597	150	174	139	134	127	104	80	67	67	48	52	41	34	33	30	22
	D	21	46	33	9	12	14	7	5	4	3	4	5	1	3	5	1	2	4	1
Rumania. (See table below.)																				
Saudi Arabia	C		6		3															
Straits Settlements: Singapore	C	2	1	3	1			1										1		
Syria	C	1																		
Trans-Jordan	C	2	6	17	1	6	2	2	6	1	4	2								
Tunisia:																				
Tunis	C		3	32	1	5	3				1		2			1		1		
Provinces	C	67	106	225	42	24	42	50	34	25	11	30	15	13	34	25	16	17	15	15
Turkey. (See table below.)																				
Union of South Africa. (See table below.)																				
Union of Soviet Socialist Republics. (See table below.)																				
Yugoslavia. (See table below.)																				
On vessel S. S. *Nova Prince* at San Francisco	C		1																	

Place		February 1935	March 1935	April 1935	May 1935	June 1935	July 1935
Bolivia	C	32	43	86	127	111	114
China: Manchuria—Harbin	C		26		45	25	
Chosen	C	126	179	198	254	135	
Czechoslovakia	C	18	52	13	8	11	
Greece	C	2	1	3	2		
Guatemala	C	20	30	35	7	6	22
Latvia	C		1		4		
Mexico (see also table above)	C	33					
	D	11					
Panama Canal Zone	C	1		1	2	1	
Peru	C	32	10	87	96	19	

Place		February 1935	March 1935	April 1935	May 1935	June 1935	July 1935
Portugal	C			8	2	3	
Rumania	C	240	433	494	574	300	59
Turkey	C	45	56	25	69	54	
Union of South Africa:							
Cape Province	C	128	100	70	128	172	
Natal	C	4	2	30	5	2	
Orange Free State	C	69	71	26	44	123	
Transvaal	C	16	21	83	12	25	
Union of Soviet Socialist Republics	C	11,158	10,921	8,414			
Yugoslavia	C	83	117	104	64	131	49

[a] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases: D, deaths; P, present]

Place		Jan. 27–Feb. 23, 1935	Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Week ended— May 1935: 4	11	18	25	June 1935: 1	8	15	22	29	July 1935: 6	13	20	27	August 1935: 3	10
Bolivia: Santa Cruz Department—Chuchio.[1]																			
Brazil:																			
Goyaz State	C								4			2							
	D		11	10	5	1													
Maranhao State	C												1						
Mato Grosso State	C											2		9					
Minas Geraes State[2]	C								6			6	2	4		2			1
	D				3	6						6	2						
Para State	C												1						
Sao Paulo State	C											1							
Colombia.																			
Intendencia of Meta—Restrepo	C		2			1										1			
	D	1																	
Villavicencio	D	1																	
Dahomey:																			
Parakou	C								[3] 1										
Porto Novo	C															1			
French Equatorial Africa: Middle Congo—Pointe-noire	C		[3] 2																
Gold Coast: Cape Coast	C																		1
Ivory Coast:																			
Banguoanou	C	1																	
Bassam (near)	C		1																
Bobo-Diolasso	C	1																	
Gagnoa	C		1																
Ouagadougou	C	1																	
Sierra Leone: Freetown	C		2																
Togo:																			
Agoueve	C					1													
Kouma	C					1													
Sokode	C							1											

[1] During the month of June 1935, 1 case of yellow fever was reported at Chuchio, Santa Cruz Department, Bolivia.
[2] During the week ended Aug. 31, 1935, 8 cases of yellow fever were reported at Theophilo Ottoni, Minas Geraes State, Brazil.
[3] Suspected.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

VOLUME 50 :: :: NUMBER 40

OCTOBER 4 - - - - 1935

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 OCTOBER 4, 1935 NO. 40

DUST STORMS AND THEIR POSSIBLE EFFECT ON HEALTH*

With Special Reference to the Dust Storms in Kansas in 1935

By EARLE G. BROWN, M. D., *Secretary and Executive Officer*, SELMA GOTTLIEB, Ph. D., *Chemist, Division of Sanitation*, and ROSS L. LAYBOURN, M. S., *Bacteriologist in Charge, Public Health Laboratory, Kansas State Board of Health*

In the course of the past year, Kansas has experienced a variety of weather conditions. An unusually severe drought prevailed during the past 3 years, extending into the spring of 1935. New high temperature records were established in the summer of 1934, and the total of nearly 300 deaths from excessive heat was four times the previous high of 75 deaths in 1931. As a result of the drought, dust storms of unprecedented intensity and duration occurred during the 3-month period from (including part of the two months) February to May, inclusive, of the present year. During May 1935, the drought was broken and excessive rainfall was recorded in nearly all parts of the State. Floods occurred, especially along the course of the Solomon, Republican, Blue, Kansas, Marias des Cygnes, and Neosho Rivers. Flood waters reached new high marks; homes, crops, livestock, bridges, highways, and public properties have been destroyed; but, fortunately, the loss of human life has been small. By way of contrast, on June 2, when floods were at their height in eastern Kansas, an unusually severe dust storm occurred at Garden City. For variety, an earthquake occurred in northeastern Kansas on March 31. It was of but a few seconds' duration, and no property damage was recorded. Our purpose in this paper, however, is to present certain data in regard to dust storms.

Kansas has experienced droughts previously, and dust storms have occurred in the central west in previous years, but their duration was limited to a few hours or a day at the most, with only one or two or possibly three storms a year. One of us (Brown) visited the dust-stricken area three times during April and May, and each time encountered one or more dust storms. During these trips several individuals were interviewed who had lived in western Kansas for

* Read before the Fiftieth Annual Session of the Conference of State and Provincial Health Authorities of North America at Atlantic City, N. J., June 14-15, 1935.

more than 50 years and each one made the statement that never in his experience or to his knowledge had such severe dust storms occurred in previous years.

The dust area included portions of five States—Colorado, Kansas, New Mexico, Texas, and Oklahoma. To this area was applied, more or less appropriately, the name of "dust bowl." The approximate center of the area was Liberal, Kans., located in Seward County,

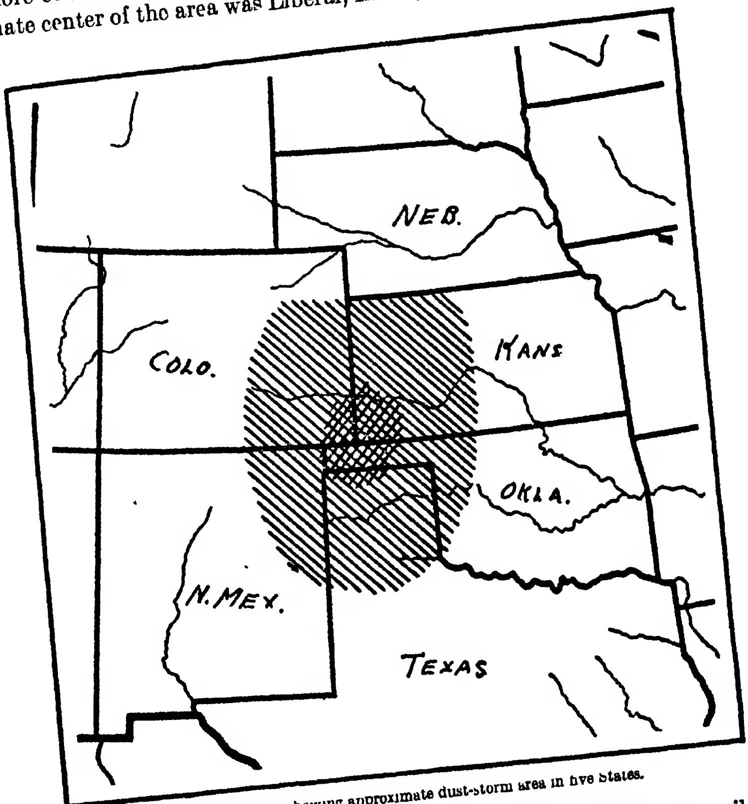

FIGURE 1.—Map showing approximate dust-storm area in five States.

5 miles from the Kansas-Oklahoma State line and some 60 miles from the Kansas-Colorado State line. This area was approximately 400 miles from north to south and 300 miles from east to west. The area most severely affected was within a radius of approximately 100 miles from Liberal. More than 100 counties are located within the area, having an estimated population of approximately 900,000. Severe dust storms were also reported last year in western Nebraska and in the Dakotas.

It is believed that conditions as regards lack of rainfall, dust storms, and illness were similar in each of the five States involved.

On April 29, 1935, under sponsorship of the American Red Cross, a dust conference was held at Liberal with the State health officers of Oklahoma, Colorado, and Kansas in attendance. A comparison of morbidity and mortality for certain of the acute infectious diseases showed similar increases for the three States. Our information and discussion, however, will be limited to conditions existing in Kansas.

Kansas is the geographic center of the United States. The State extends approximately 400 miles east and west and 200 miles north and south. In shape it is almost a perfect rectangle. Contrary to popular belief, Kansas is not flat and featureless. The landscape is far from a monotonous succession of level prairies. It has innumerable hills and picturesque valleys.

The land surface slopes eastward at an average of 8 feet to the mile, with an elevation of 4,135 feet along the western boundary and 734 feet where the Verdigris River crosses the Oklahoma boundary in the southeastern corner of the State. In some places the land slopes steeply or even precipitously. In parts of western and southwestern Kansas are small canyons with steep, bare walls, resembling the gorges of a more mountainous country.

The greater part of western Kansas is covered by a mantle of sand and calcareous clay. The soils of northwestern Kansas comprise a great area formed from wind-deposited material. There are many areas within this region, adjacent to the streams, where the wind-laid soils have been eroded, the underlying rocks exposed, and residual soils formed. These wind-deposited soils are subject to erosion by both wind and water. In the southwest portion of the State are the outwash plains soils (heavy). Both soils are of very fine material, although one is heavier than the other, but both are subject to being carried by heavy winds. Wind erosion occurs during those seasons when the surface soil becomes dry, is not covered by vegetation, and high winds prevail.

The prevailing winds in the western part of the State from April to October, inclusive, are from the south or southwest. During the winter months, north or northwest winds prevail. April is the windiest month of the year.

The average rainfall for the west quarter of the State is approximately 20 inches, with some increase in the total fall in the next 100 miles to the east, increasing to as much as 40 inches or more in the eastern part of the State. A comparison of rainfall recorded in the various counties for the 5-year period 1930–34 shows, almost without exception, noticeable decreases in the past 3 years.

Forty-five Kansas counties are included in the wind-soil erosion area, the total population of which is approximately 330,000. There are nine cities, each with a population in excess of 2,500, the largest being Dodge City, with slightly more than 10,000.

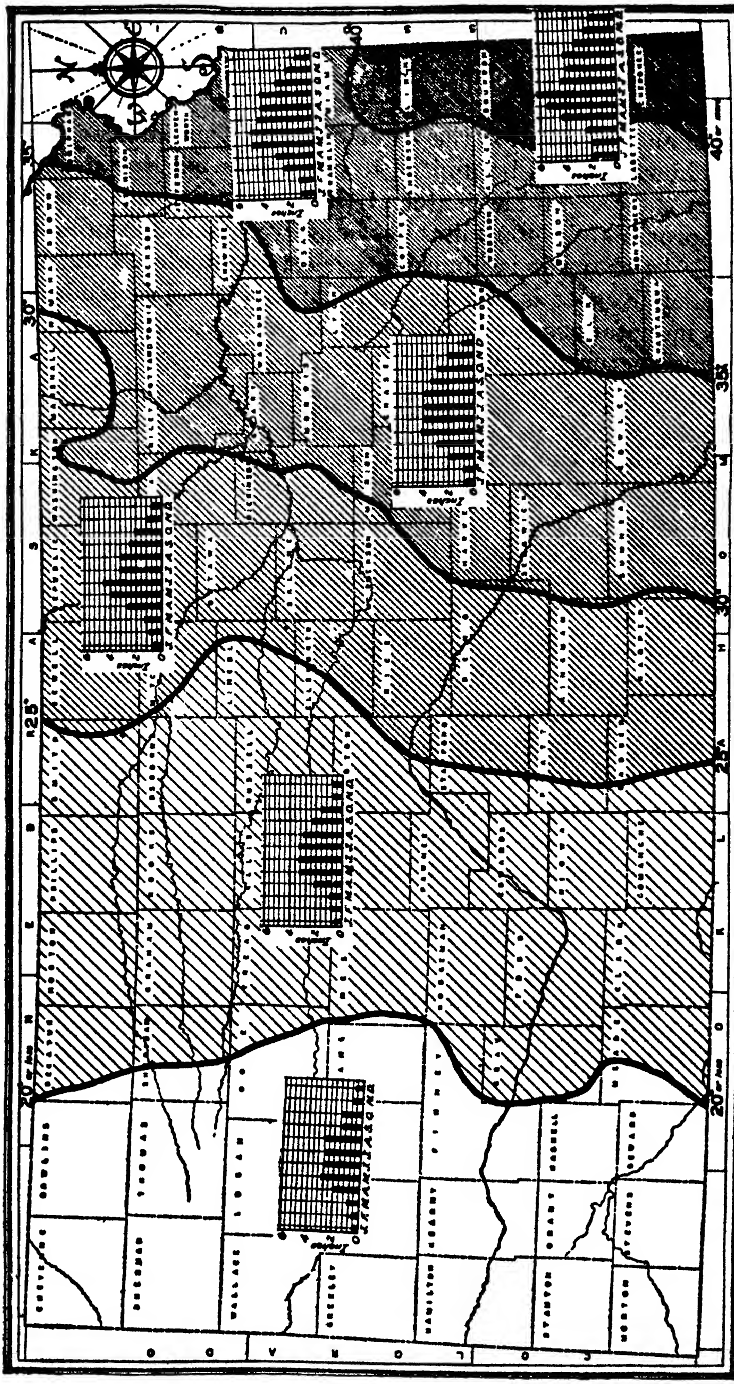

FIGURE 2.—Average rainfall and normal distribution in different areas in Kansas. (Data are for representative stations in each area.)—Courtesy Kansas State Planning Board.

With the exception of this limited number of cities, the area is essentially rural and agriculture is the principal industry. The Kansas State Board of Agriculture estimates that, of the 13,000,000 acres planted to wheat in the fall of 1934, some 9,000,000 acres were sowed in these counties. A limited amount of ground is used for the production of corn, kaffir corn, sargo, and other row crops. The remaining land is used for grazing, and naturally there is some waste land.

There have been two types of dust storms, although both were the result of high winds. One type was the result of the wind blowing the dust from the ground, the cloud rising higher and higher. The other was the result of the dust having been carried into the high air currents and then gradually settling as the wind lessened. Nine storms of the latter type occurred in Topeka during the month of March 1935, the most severe on March 20. On this date, according to S. D. Flora, State meteorologist, visibility decreased steadily from about 4 miles at 8 in the morning to approximately 220 yards at 11:14 a. m., at which it remained until after 4 in the afternoon. The sun was entirely obscured by dust, and artificial illumination was necessary for reading in homes and offices. Airplane pilots are reported to have encountered much dust as high as 10,000 and 15,000 feet.

The most graphic description of a dust storm is that given by A. A. Justice, meteorologist at Dodge City, contained in his official report for the month of April. It follows:

The storm that will longest be remembered came on the afternoon of Sunday, the 14th, striking at 2 40 p. m Instant darkness followed, lasting for 40 minutes. Then for a period of about 3 hours there was darkness, with occasional breaks of very short duration. By midnight the dust became light.

Many people were caught out in this storm, and these people had a variety of experiences to relate after the storm had passed. Some children were caught in the park and narrowly escaped serious consequences. Many persons spent several hours in stalled motor cars along the highways. Others relate going for considerable distances on hands and knees seeking shelter. No fatalities are known.

As a meteorological phenomenon this storm was very interesting. Many people saw the dust cloud coming, even though visibility was limited to a few miles by the dust then prevailing. The cloud extended east and west as far as could be seen in a straight line. As it came on it presented a rolling, tumbling appearance, something like a great wall of muddy water. The base of the cloud was inky black, the top portion of a lighter color, due to the amount of light falling on the two portions. The height of the cloud was estimated to be about 1,000 feet. According to the most trustworthy observers, the upper portion of the cloud appeared to be rolling forward and downward, the extreme lower front was lined with columns of rapidly rising dust, as though these were forced out by the falling heavier air layers above and behind. Apparently this was a well-developed polar front; all the air movements in it seemed to conform to the idealized structure of a cold front. According to some who took the trouble to check up on the movements of the front of the storm, it was traveling at about 60 miles per hour in this area.

An interesting thing observed was the great number of birds flying straight in front of the onrushing cloud. Hundreds of geese and ducks and smaller birds too

numerous to count were racing for their lives; and in this instance the race was to the swift, for the strong-winged geese and ducks left the cloud at a safe distance behind while the smaller, weaker birds were caught. The almost entire absence of all birds following the storm is one proof of its severity. Another proof of its severity was shown in the great number of jack rabbits seen lying dead on the prairies during the next few days.

Mr. Justice also states in his report:

The total wind movement in April was the greatest for any month of record. There was a total movement of 13,059 miles (uncorrected), as compared with the previous record of 12,733 miles in April 1877. The precipitation was 0.03 inch.

A severe storm occurred on the 10th–11th in connection with the passage of an intense cyclonic disturbance. During the 2 days there were 41 consecutive hours with dense dust, during which time the visibility ranged between 1,000 and 50 feet. The total wind movement during these 41 hours was 1,111 miles; the maximum velocity for 5 minutes, 38 miles. For long periods of time, semi-darkness prevailed during the daylight hours. Traffic was tied up; business was practically at a standstill; no one ventured out unless compelled to. Further damage was done to surviving wheat, and much soil drifting occurred.

Mr. Justice, in his March report, comments as follows:

The storm of the 26th came at 8:06 p. m., after a fine day. The black cloud came silently from the north, blotting out the stars one by one as suddenly and completely as if they had been snuffed out. Visibility dropped at once to about 100 feet and remained so to midnight and past. Maximum wind velocity, 37 miles from the northeast.

From 11 a. m. of the 15th to past sunrise of the 22d the air was so dusty that the horizon was never visible, the visibility most of the time remaining below 1 mile, and for many hours at a time below 1,000 feet.

Official records of the Dodge City office of the Weather Bureau during the 68-day period of February 21 to April 30, inclusive, show 27 days of "light" dust and 28 days of "dense" dust, a total of 55 days of dust. Only 13 days were reported as dust-free. This may be considered as applying to the greater portion of the "dust bowl."

TABLE 1.—*Temperature and relative humidity records for Dodge City and Wichita, for certain days of dust storms*

Date 1935	7 a. m.		12 noon		7 p. m.	
	Temperature	Relative humidity	Temperature	Relative humidity	Temperature	Relative humidity
DODGE CITY						
Feb. 21	49	43	73	16	65	12
Mar. 15	56	42	79	14	79	9
Mar. 19	47	43	60	33	62	47
Mar. 26	46	55	71	18	67	17
Mar 30	38	60	38	57	43	46
Apr. 10	42	55	43	55	41	55
Apr. 11	39	63	46	48	46	49
Apr. 14	50	32	82	10	53	33
WICHITA						
Mar. 16	38	51	38	43	36	48
Mar. 20	66	80	65	12	65	16
Mar. 23	58	20	70	76	68	16
Apr. 10	57	95	58	34	48	54
Apr. 11	42	67	46	60	46	56
Apr. 14	58	28	----------	----------	58	34
Apr. 26	50	52	65	34	66	35

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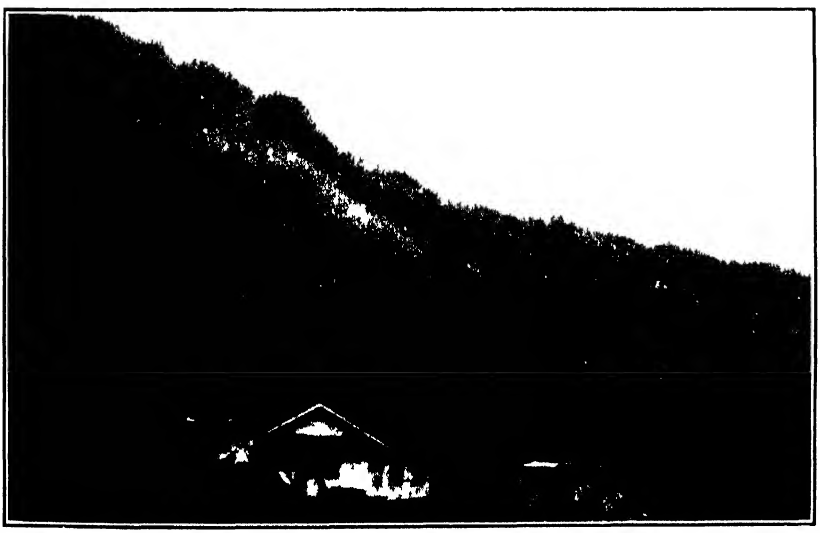
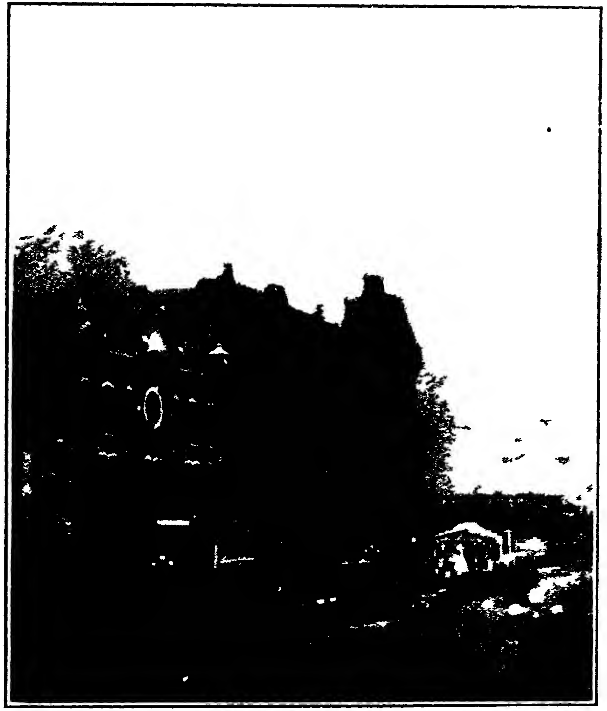


I ıc t kr 4 –The ominous appe ar nce of the ne ring w all of dust (C opyri hted photograph U sed by p rmission of copyrıght owners)



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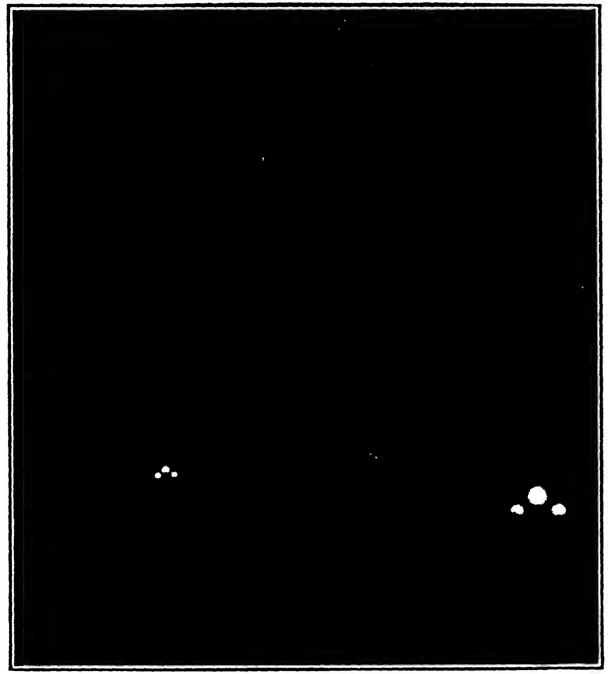

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FIGURE 8.—Farm machinery almost covered by soil drifts. (Copyrighted photograph. Used by permission of copyright owners.)

FIGURE 9. Soil drift around farm machinery. (Copyrighted photograph. Used by permission of copyright owner.)

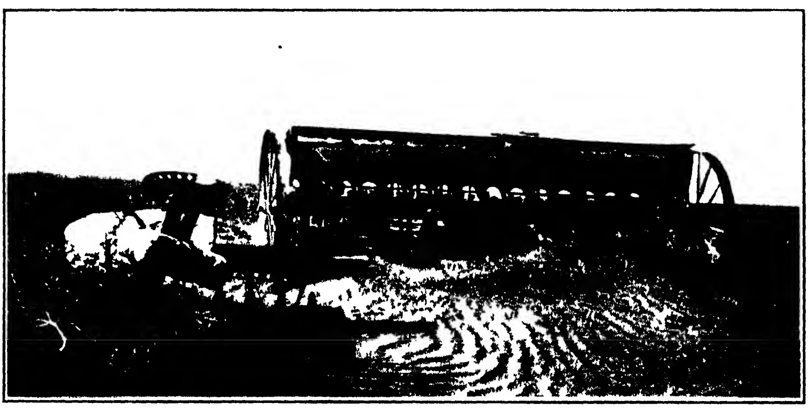

FIGURE 10. Note soil drift over disk. (Copyrighted photograph. Used by permission of copyright owners.)

FIGURE 11 —Dustproofing of house by use of translu[illegible]

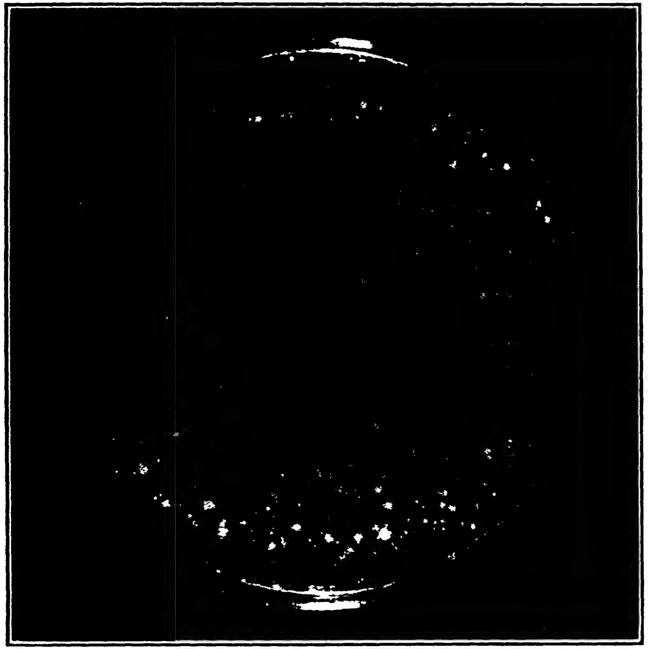

FIGURE 12.—Plate exposure of 1½ minutes at Lawrence, Kans., March 20, 1935, during dust storm.

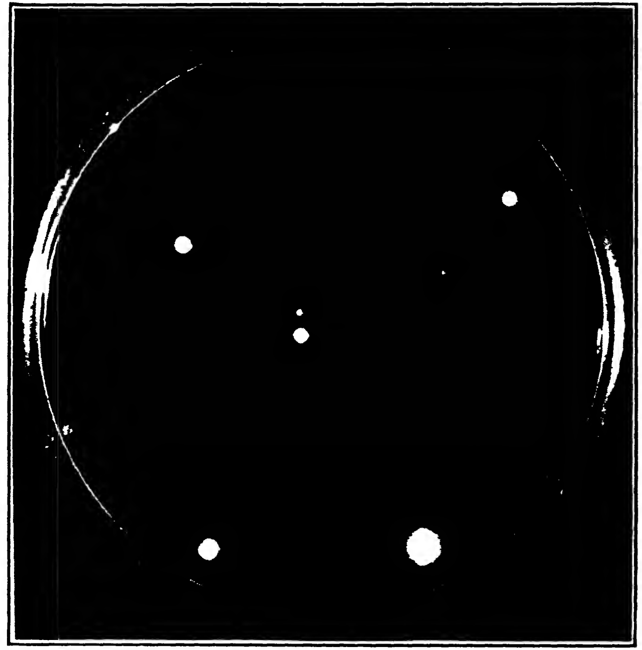

FIGURE 13.—Plate exposure of 1½ minutes at Lawrence during normal weather, March 25, 1935.

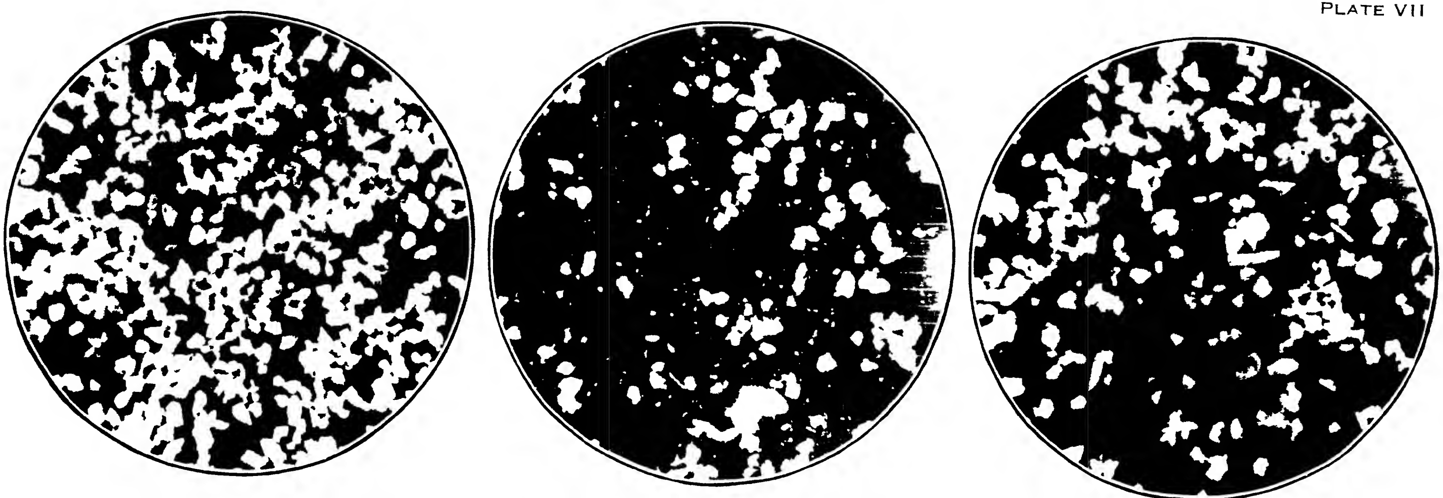

FIGURE 14.—Showing method of determination of particle size. × [illegible]

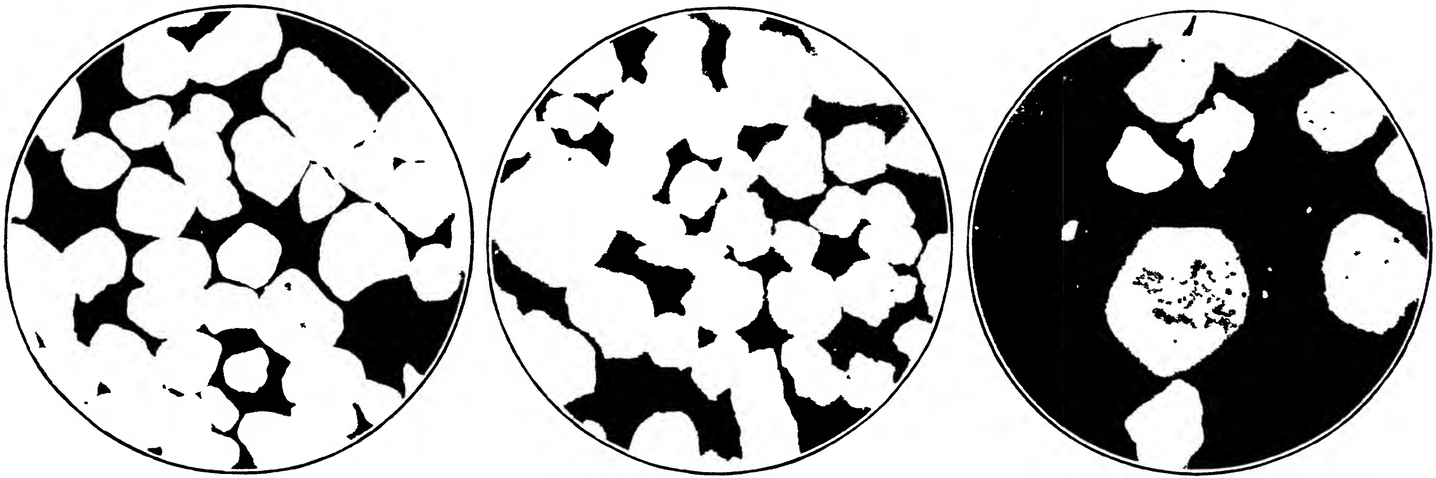

FIGURE 15.—Another photograph of dust particles as seen on haemocytometer slide in determining particle size × 50

Of especial interest were the temperature and relative humidity records for certain days when the dust was most dense. At Dodge City on March 15, 1935, at 7 a. m., the temperature was 56° F. and the relative humidity was 42; at 12 noon the temperature was 74° and the relative humidity was 14; and at 7 p. m. the temperature was 79° and the relative humidity was 9. At Wichita, on March 20, at 7 a. m. the temperature was 66° F., with a relative humidity of 90; at 12 noon the temperature was 65°, with a relative humidity of 12; and at 7 p. m. the temperature was 65°, with a relative humidity of 16. These data will be found in table 1.

As a result of the combination of the prolonged drought and the high winds, great damage was done to homes, livestock, and crops and human health was impaired. Authorities state that in some counties the wheat crop is a total loss, as well as some of the spring crops, such as barley and oats. There has been a tremendous loss of livestock. Pastures were so covered with dust that they were unfit for grazing; and even after the rain fell, it was considered they would not have more than 50 percent normal growth for the season.

Fields originally level now have drifts 2 to 4 feet high, Russian thistles or tumble weeds serving as wind retards. Drifts covered fences and in many places blocked highways. One drift in Edwards County was 250 feet long, with a maximum height of 5 feet, a snow fence serving as wind retard. This drift contained approximately 17,000 tons of sand and silt. Ditches along the highways have been filled to the level of the roadbed. In some areas it is said that some houses were surrounded by sand drifts. It was not unusual to see in fields along the highways, farm machinery almost covered by drifts.

The drought ended on May 10-11, when heavy rains fell throughout the State. In one county 6 inches of rain fell within a period of 3 hours. Despite the fact that there was a general rainfall, occasional dust storms were reported in the 2 weeks following. However, vegetation has now taken root, spring crops have been planted, and it is believed that the danger of dust storms during the present season is at an end.

Limited information is available as to the amount of dust that fell during the 3-month period. The following data are supplied by Dr. F. L. Duley, regional director, Soil Conservation Service, Kansas area, and G. B. Killinger, assistant soil expert. This material will be included in a future publication by Dr. Duley and Mr. Killinger.

Jewell County has had a drought for several years. In 1934 the precipitation was only 13.75 inches, whereas the normal rainfall would have been approximately 24.5 for the same period. During the first 4 months of 1935 the precipitation was only 1.77 inches, whereas it should have been approximately 5 inches. This latter 4-month period was the time during which we had our most severe dust storms.

Some measurements on the amount of silt carried by the wind during certain dust storms were recorded as follows:

March 15: Sample collected in shallow bake pan in yard measured equivalent to 4,145 pounds per acre.

March 26: Several small bake pans half full of distilled water on top of three-story hotel showed an average of 2,234 pounds per acre. Soil taken from Government rain gages in area showed an average of 2,000 pounds of soil deposited per acre for one storm.

April 16: Silt collected on hotel in small pan part full of distilled water was equivalent to 913 pounds per acre.

April 22: Pans on hotel had equivalent to 262 pounds per acre.

The total deposit of dust during these five storms was 4.7 tons per acre. There were several other dust storms for which we have no measurements.

The preceding measurements were all made in pans or rain gages and should be fairly representative of the amount of silt carried and deposited by the wind.

Measurements were made of soil deposited on a Russian thistle field when wind movements did not carry the material away. This field was located near cultivated land which was losing soil at a very rapid rate. Three 4-foot square areas were measured and weighed from this field, averaging 74.6 tons of soil deposited per acre.

A sunflower field gained 7.2 tons of soil per acre.

A bluestem pasture gained 5.4 tons of soil per acre.

A forested area gained 14.5 tons of soil per acre.

These latter measurements are probably mostly of soil moved locally, although some of the material was undoubtedly transported for some distance.

Naturally we were interested in the bacterial and chemical content of the dust. Two of us (Brown and Laybourn) made trips into the dust area and exposed agar plates to secure an index of the number of micro-organisms present in the air during dust storms. Dust samples were collected in sterile bottles. One series of plate exposures was made by Cassandra Ritter, bacteriologist, division of sanitation of the State board of health, at Lawrence, on March 20. Other plate exposures were made and dust samples collected by certain county health officers in western Kansas.

In determining the number of bacteria present in the dust carried by the storm, Difco "Standards Method Agar" was used; incubation was for 48 hours at 37° C., and the time of exposure of plates was from 5 to 15 seconds, depending on the severity of the storm. Final calculations were based on the number of organisms impinging on an area of 1 square foot per minute and the results obtained were as follows:

Date	Number of organisms per square foot per minute	County	Location
1935			
Mar. 30	31,000	Douglas	Lawrence.
Apr. 30	89,000	Seward	15 miles northwest of Liberal.
May 2	78,000	Ellis	Hays.
May 8	46,000	Finney	Garden City.
Do	460,000	Ford	Dodge City.
May 10	21,000	Sherman	Goodland.
Do	120,000	Norton	Norton.
Do	130,000	Hamilton	Syracuse.

At the time when the plates were exposed near Liberal on April 30, infusion agar, blood agar, eosin-methylene blue agar, and MacConkey's agar plates were also exposed. Counts were somewhat higher on the infusion and blood agar plates than on the "Standard Methods Agar", but no pathogenic organisms were found on these plates. No organisms of the *coli* group were found on the eosin-methylene blue agar or MacConkey's agar plates.

The predominating bacteria observed on plates exposed during dust storms were spore-forming soil types. Molds were almost as numerous as bacteria, and some yeasts were also observed.

The bacterial content per gram of dust was made on representative samples collected from accumulations and drifts in various parts of the dust area. Semiquantitative determinations of the number of *coli* organisms per gram of dust were also made. In making these determinations, one gram of dust was added to 999 cc of sterile water and thoroughly agitated. Additional dilutions were made and plated, using "Standard Methods Agar", and incubated at 37° C. for 48 hours. The bacterial content per gram of dust sample and the macroscopic appearance of the sample and the place of collection are given in table 2.

TABLE 2.—*Bacterial content per gram of dust*

Date	Number of bacteria per gram of dust	Appearance of sample	County	Location
1935				
Apr. 30	170,000	Fine sand	Seward	15 miles north of Liberal.
Do	210,000	do	Meade	4 miles north of Fowler.
Do	710,000	Fine dust	Seward	Outside window sill, Warren Hotel, Liberal.
Do	760,000	do	do	Floor sweepings, Liberal High School
Do	410,000	Earthy	do	Lister row, 23 miles northeast of Liberal.
May 2	600,000	Medium fine earth and sand.	Ellis	Hays, north city limits.
Do	170,000	Fine dust and organic debris.	do	Hays, west city limits.
May 7	220,000	Fine dust	Norton	Norton.
May 8	600,000	Medium fine dust	Finney	Garden City, edge of town.
Do	620,000	Fine dust	do	Garden City, in town.
Do	500,000	do	Ford	Dodge City, Main Street.
Do	630,000	do	do	Dodge City, top of First National Bank
Do	850,000	do	Grant	Ulysses, inside garage.
Do	200,000	do	do	Ulysses, east of town.
May 10	290,000	do	Norton	Norton.
Do	280,000	do	Hamilton	Syracuse, third floor, east side.
Do	310,000	do	do	Syracuse, first floor, west window.
Do	240,000	do	Sherman	Goodland.
Do	310,000	do	do	Do.

Coli determinations were made by adding portions of the 1:1,000 dilutions of dust samples to Durham fermentation tubes containing lactose broth. The usual sanitary water analyses set-up was employed, which included five 10-cc portions, two 1-cc portions, and one 0.1-cc portion. All lactose fermentation tubes showed vigorous gas

production within 48 hours, and transfers were made to eosin-methylene blue agar and Endo's medium. Characteristic organisms of the *coli* group were obtained from only 1 sample of the 19 tested. This sample was collected at Goodland, in Sherman County, and was found to contain not less than 20 *coli* organisms per gram of dust. The majority of the lactose fermentors present in the fermentation tubes were spore fermentors of either the *sporogenes* or *mesentericus* types.

In the determination at Lawrence, "The colonies on the plates appeared very similar to those formed by soil organisms, some of which will appear on plates made from raw waters. This was borne out by a microscopical examination of a number of colonies. Of 11 colonies examined, all but 2 had formed spores in 24 hours; they were all rather large bacillus forms, and most of them were Gram-positive. No coccus forms were found, either in that or later microscopical examinations. This strongly indicated that the bacteria surviving in the dust were resistant soil types."[1]

PHYSIOLOGICAL RESPONSE TO INHALATION OF SILICEOUS DUST

The role of siliceous dusts in production of silicosis is well known. According to Bloomfield and Greenburg, the results of investigations during the last 10 years have led to formulation of the concept that, so far as the fibrosis-producing qualities are concerned, dangerous dusts may be divided into three groups: (*a*) Those completely composed of silica in the form of silicates (that is, silica in the combined state, such as pure asbestos); (*b*) those containing silica in the crystalline form (known as quartz); and (*c*) those containing free silica in a form other than quartz (such as diatomaceous earth). The physiological harmfulness of a dust depends partly on its quartz content.

With regard to harmfulness of a given dust, three factors are of prime importance—the amount suspended in the air, the duration of exposure, and the particle size. As to size, it is now generally agreed that, in the case of quartz-containing dusts, the dangerous particles are usually between one-half to 5 microns in diameter and are practically always less than 10 microns.

In the investigations made by the Public Health Service into the hazards of granite cutting with a dust containing approximately 35 percent quartz, it was concluded that exposure even for considerable periods of time to less than about 10 million particles of dust per cubic foot of air was relatively safe, whereas exposure to concentrations of more than 20 million particles per cubic foot was hazardous. With a dust containing 85 to 90 percent of quartz, a concentration of over 6 to 8 million particles per cubic foot of air is regarded as hazardous.

[1] Ritter. Pub. Health Rep., May 3, 1935, p 623.

Collis and Yule have studied the mortality experience of an occupational group exposed to silica dust compared with that of the general population and an occupational group exposed to dust not containing silica. Their conclusion is that silica is such a body poison as is lead. Although it affects chiefly the respiratory organs, it also impairs the circulatory system, the nervous system, the digestive organs, and the kidneys and liver, so that should the victim escape death through some respiratory disease, he is more than ordinarily liable to diseases of the other organs mentioned. The authors further state that the silica dust hazard is probably the most widespread and insidious of all hazards in the environment of mankind.

REPORT OF LABORATORY FINDINGS

The six samples of dust submitted to the laboratory were subjected to both physical and chemical examination. The results are tabulated in table 3.

The moisture content was determined by drying at 103° C. The loss on ignition represents organic matter and more firmly bound water. Samples of the dust were fused with a fusion mixture of equal parts of sodium and potassium carbonates to bring the silica and silicates into solution. Upon acidifying, the silica was precipitated and was weighed as such after appropriate dehydration. The metal oxides were precipitated in the filtrate with ammonia, filtered off, ignited, and weighed. Calcium was precipitated as the oxalate in the filtrate from this treatment.

TABLE 3.—*Chemical analyses of dust samples and determination of particle size*

Item of analysis	Sample no					
	1	2	3	4	5	6
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Moisture	1.9	2.1	2.0	0.03	1.5	0.03
Loss on ignition	6.8	7.4	7.3	.7	8.5	1.5
Silica	72.8	73.6	73.5	92.9	66.9	88.7
Metal oxides	14.8	13.8	15.4	[1] 5.2	15.9	[1] 8.2
Calcium oxide	1.6	1.2	1.3	.2	1.0	.3
Undetermined	2.1	1.9	.5	.97	6.2	1.27
Total	100.0	100.0	100.0	100.99	100.0	100.0
	Particle size (microns)					
Average	38	26	44	185	123	330
Maximum	70	80	90	320	460	770
Minimum	16	2	16	100	80	120

[1] Mostly Al_2O; others were mostly Fe_3O_4.

Locations from which dust samples were taken:

1. Window ledge, Warren Hotel, Liberal, May 10, 1935. Fine dust, medium brown.
2. Ness City sidewalk sweepings, 8:30 a.m., May 10, 1935. Fine dust, medium gray brown.
3. Window ledge, Ness City Hotel, May 10, 1935. Fine dust, medium gray brown.
4. 8 miles north of Liberal, 10:20 a. m., May 11, 1935. Fine sand, medium brown.
5. 8 miles east of Dodge City, 1:30 p. m., May 11, 1935. Earthy appearance, dark brown.
6. 4½ miles east of Lewis, pile on snow fence, 2:30 p. m., May 11, 1935. Medium coarse sand, medium gray brown.

The particle size was determined as follows: The dust sample was thoroughly mixed and a portion dusted as evenly as possible on a haemocytometer slide, which was placed on the stage of a microscope under the low power lens. The microscope was fitted with a metal cylinder surrounding the upright tube and extending several inches above it. It was attached in such a manner as to be light-proof. The top of the metal cylinder was covered with a piece of plain window glass and a piece of frosted glass through which the image of the dust could be examined. After proper adjustment of the sample and microscope, the room was darkened, a piece of photographic printing paper was placed face-down between the two pieces of glass and the sub-stage lamp turned on for a period of 10 to 35 seconds, the time of exposure being determined by experiment. This made possible the direct photographing of shadows of the dust particles without use of films or plates and without the usual photomicrographic apparatus. From the size of the haemocytometer ruling in the finished picture, the magnification could be accurately determined. Particle size was then determined from the finished pictures by measurement with an accurate millimeter rule. This method was devised and the equipment set up by Mr. Harold Clark, a graduate student and assistant instructor in bacteriology at the University of Kansas.

It will be noted that these dust samples average much larger in particle size than the values reported for industrial dusts and outdoor dusts in the foregoing discussion. These values are somewhat corroborated by the finding of Hatch (personal communication to Mr. Boyce) that the dust drifting from the Middle West dust regions as far as Boston had an average particle size of 20 microns.

HEALTH CONDITIONS

In the past 5 months Kansas has experienced its most severe measles epidemic as regards total number of cases. From January 1 to June 8, inclusive, more than 40,000 cases of measles were reported, as compared with the previous high total of 22,464 cases for the 12 months of 1917. One hundred and forty-five deaths from measles occurred in the first 4 months of the present year. The incidence of complications of this disease was also apparently unusually high, especially otitis media.

In addition to measles, acute respiratory infections have prevailed throughout the State in unusually large numbers. The reporting of pneumonia cases, however, cannot be used as an index of the actual number of cases of that disease which actually occurred. Many health officers reported a 50 to 100 percent increase in pneumonia cases in their respective communities as compared with the same

months of 1934. Health officers also advised of a very marked increase in the other complications of the acute respiratory infections, especially sinusitis, laryngitis, pharyngitis, and bronchitis. Large numbers of cases of streptococcic sore throat were reported, and numerous cases of corneal ulcer and eye infections were seen by physicians.

A comparison of death rates for the acute respiratory infections for the first 4 months of each of the past 4 years shows the rate per 100,000 for the 45 counties in 1935 to be 99 as compared with a State rate of 70. The infant mortality rate for the present year for the 45 counties was 80.5, as compared with a rate of 62.3 for the State. These data for the 4-year period will be found in table 4.

TABLE 4.—*Comparison of death rates per 100,000 population for the State and wind-soil erosion counties (acute respiratory infections and infant mortality) for the 4-year period, 1932–35*

Death rate, acute respiratory infections			Infant mortality rate	
Year	State	W. S. E. C	State	W. S. E. C.
1932	47	41	49.2	51.6
1933	70	73	69.7	81.3
1934	42	33	50.1	48.7
1935	70	99	62.3	80.5

Reports from the principal hospitals in the dust area indicate a very high proportion of admissions for acute respiratory infections in the first 4 months of the present year. In one hospital, 12 percent of admissions in January were for this cause, 14 percent in February, 17 percent in March, and 52 percent in April. For four of the hospitals in 1935, 233 admissions were for acute respiratory infections, with 33 deaths, as compared with 118 admissions and 15 deaths in 1933, and 115 admissions and 15 deaths in 1934. It should be remembered, however, that owing to the publicity given the so-called "dust pneumonias" more patients were sent to hospitals than in previous years. A number of patients were moribund when admitted and died within a few hours. Many cases came from a considerable distance, often during severe dust storms, and probably their resistance was further lowered by reason of the long ride and breathing the dust. Many of the hospitals furnished gauze masks to their patients, which gave them greater comfort in breathing during the storms.

No evidence has been found that any pathogenic organisms were carried by the dust, and therefore the direct cause of the increase in respiratory infections could not be attributed to this factor. The dust, however, was exceedingly irritating to the mucous membranes of the respiratory tract, and in our opinion was a definite contributory factor in the development of untold numbers of acute infections

and materially increased the number of deaths from pneumonia and other complications.

PREVENTION OF DUST INHALATION

Shortly after the beginning of the dust storms, our department issued a statement advocating the wearing of gauze masks during the storms. At the conference in Liberal, previously referred to, the State health officers of Oklahoma, Colorado, and Kansas issued a statement approving the program inaugurated by the American Red Cross, which included—

1. The hospitalization of individuals who were so seriously ill that they could not receive adequate attention at home;
2. The dustproofing of homes in the dust area; and
3. The wearing of masks by all individuals exposed to dust.

Following the conference, the Red Cross issued a call to their various chapters for dust masks, which were made of gauze or cheesecloth. According to their report, more than 17,000 masks were distributed in the next 3 or 4 weeks. In the meantime, large numbers of persons had purchased masks of commercial manufacture, ranging in price from $1 to $4. In our judgment, the light gauze masks are very satisfactory for use even in severe storms.

In our first trip through the dust area and preceding the Liberal conference, we noted a number of homes where the windows had been sealed on the outside with translucent glasscloth. We were also informed by some individuals that they had used gummed paper tape, or linen cloth with a starch paste, or even glue. We believe the most satisfactory method of dustproofing was through the use of glasscloth on the inside of the house.

The American Red Cross made a demonstration in a number of the counties of the method of dustproofing through use of glasscloth, or by calking. The Red Cross furnished the material and the KERC, the labor. The cost of dustproofing a home of 2 or 3 rooms with glasscloth, exclusive of labor, was approximately $3. The glasscloth, when used on the inside of the house, extended past the frame of the windows or doors, and the edges were then sealed to the wall with gummed masking-tape.

The general attitude of those living in this area, even when the storms were at their height, was one of optimism. All that was necessary was rainfall, which would settle the dust and allow the planting of crops.

Rain did fall; it cleaned the air. Crops have been planted and are now growing. The general health has improved, and, for the most part, families are living under normal conditions. It is hoped that dust storms, experienced almost daily for a period of 3 months will never occur again.

SUMMARY AND CONCLUSIONS

1. The dust storms which have occurred in the central west are the climax of a 4-year period of decreased rainfall, a lack of growth of vegetation, and high winds.

2. Crop and livestock losses have been large. It is believed by authorities that, although there has been much shifting of soil, the actual damage to farm lands is small, if any.

3. There is no evidence that pathogenic organisms were actually carried by the dust.

4. The dust acted as an irritant to the mucous membranes of the respiratory tract. Laboratory examinations have shown the dust to have a high silica content.

5. The effect of dust storms on the public health must be divided into "immediate" and "future" effects.

6. The "immediate" effects are shown in the increase in morbidity and mortality from the acute infections of the respiratory tract.

7. The "future" effect is unknown. Possibly over a long period of exposure or repetitions of the storms the end effects would be similar to those from exposure to mine and other industrial dusts.

8. Dustproofing of homes and the wearing of masks are essential to the comfort and welfare of individuals living in the dust area if future storms should occur.

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MILK CONTROL AND THE UNITED STATES SUPREME COURT

By JAMES A. TOBEY, LL. B., Dr. P. H., *Director of health service, the Borden Co., New York, member of the New York and United States Supreme Court Bars*

The Federal Constitution provides among other things that no State shall deprive any person of life, liberty, or property without due process of law nor deny to any person within its jurisdiction the equal protection of the laws. The Constitution also vests in the Congress of the United States exclusive power to legislate in the interests of interstate commerce.

State laws and municipal ordinances pertaining to the public health often have been attacked as violating the Federal jurisdiction over interstate commerce or as in conflict with the constitutional privileges of individual citizens outlined in the fourteenth amendment. As the final arbiter of constitutional questions the Supreme Court of the United States has ruled on numerous occasions that, while there are certain limitations on the police power of the States, the States are not deprived, by certain provisions of the Federal Constitution, of the power to make *reasonable* regulations for the protection of the public health.[1]

The question of the proper extent of State or municipal control over milk and milk products has been decided by the United States Supreme Court in several important and interesting cases. Since the beginning of the twentieth century this court has been called upon to adjudicate eight causes of action directly on the subject of the regulation of milk and dairy products, has handed down several other decisions on the economic control of milk, and has, of course, enunciated legal principles in numerous other cases which have a significant, if indirect, influence on this whole matter.

In the first case directly involving milk control, that of *Fischer* v. *St. Louis*,[2] which came before the United States Supreme Court in 1904, the constitutional issue was whether a municipal ordinance requiring permits from the municipal assembly for the establishment of dairies in the city was or was not in contravention of the fourteenth amendment to the Federal Constitution. A dairyman who had been convicted of a violation of the ordinance contended that he had been denied due process of law and the equal protection of the laws as guaranteed to him by this amendment. The supreme court of Missouri had upheld the conviction,[3] and the case was then appealed to the highest court of the land.

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[1] Tobey, J. A.: Public Health Law. Williams & Wilkins. 1926. Also Tobey, J. A.: The National Government and Public Health. Johns Hopkins. 1926. Chap. V.

[2] *Fischer* v. *St. Louis* (1904), 194 U. S. 361, 48 L. Ed. 1018, 24 S. Ct. 673.

[3] 167 Mo. 654, 67 S. W. 872.

The United States Supreme Court affirmed this decision, stating that the city was shown to have the authority to adopt the ordinance and that there was no discrimination in its provisions and no abuse of the licensing power. This decision sustains the constitutionality of reasonable licensing, by the State or its political subdivisions, of persons engaged in the production and sale of dairy products.

In the following year, in the case of *Lieberman* v. *Van de Carr*,[4] the Court was confronted with a similar question, but with the difference that the jurisdiction of a municipal board of health in issuing permits for the sale of milk was before it for determination. A milk dealer had been convicted of a violation of the sanitary code of New York City, which prohibited the sale of milk in the city without a permit in writing from the board of health. Here again, the law had been upheld by the highest court of New York, the court of appeals,[5] but the aggrieved defendant felt that his constitutional rights of due process of law had been infringed.

As in the previous decision (ref. 2), the United States Supreme Court adjudged that the sanitary code was valid and sustained the authority of the city to issue or withhold permits in the honest exercise of a reasonable discretion. In this opinion Mr. Justice Day stated "That this Court will not interfere because the States have seen fit to give administrative discretion to local boards to grant or withhold licenses or permits to carry on trades or occupations, or perform acts which are properly the subject of regulation in the exercise of the reserved power of the States to protect the health and safety of its people, there can be no doubt", and he pointed out that there was nothing to show that the action of the health authorities was arbitrary or oppressive and that all milk dealers were equally affected by the provisions of the code.

The next case concerning milk control brought before this court, *St. John* v. *New York*,[6] involved a State law which defined and prohibited the adulteration of milk and set standards to be complied with by all persons selling milk. A nonproducing wholesale and retail milk dealer, while conceding the power of the State to adopt such legislation, complained that its operation worked an injustice against nonproducers and thus was unconstitutional. The New York courts, however, sustained the law,[7] which was also upheld by the United States Supreme Court.

In this decision attention was called to the fact that the ultimate purpose of the law was that wholesome milk should reach the consumer. Care in his purchases, said the Court, would allow the non-

[4] *Lieberman* v. *Van de Carr* (1905), 199 U. S. 552, 50 L. Ed. 305, 26 S. Ct. 144.
[5] 175 N. Y. 440, 67 N. E. 913, 106 Am. St. Rep. 781.
[6] *St. John* v. *New York* (1906), 201 U. S. 633, 50 L. Ed. 896, 26 S. Ct. 554, 5 Ann. Cas. 909.
[7] 178 N. Y. 617, 70 N. E. 1104.

producing vendor of milk to comply with the provisions of the law without undue hardship.

Seven years elapsed before the next case on milk control was decided by the Supreme Court, but this decision, *Adams* v. *Milwaukee*,[8] presented some important new principles. The case reached the United States Supreme Court on appeal from a decision of the Supreme Court of Wisconsin, which sustained the validity of an ordinance of the Common Council of the city of Milwaukee regulating the sale of milk. This ordinance prohibited the sale of milk in the city from outside sources unless it came from tuberculin-tested cattle, as shown by a certificate from a duly licensed veterinarian. The ordinance also empowered the commissioner of health of the city to confiscate and destroy any unwholesome milk shipped into the city.

The plaintiff, Adams, contested this ordinance on the ground that it discriminated against him in favor of producers within the city, but the Supreme Court of the United States held that, since all producers outside the city were treated alike, there was no discrimination or violation of constitutional rights. The Court said: "The requirements are not unreasonable; they are properly adaptive to the conditions. They are not discriminatory; they have proper relation to the purpose to be accomplished." Reference was made to the prior decision in *St. John* v. *New York* (ref. 6) as a case quite in point.

With regard to the confiscation and destruction of milk shipped into the city which did not conform to the requirements of the ordinance, the Court stated that this was the only available and efficient penalty for violation of the ordinance, that such drastic action was justified under the police power, and that it was not a taking of property without due process of law within the meaning of the Federal Constitution. This case was said to come within the principle of *Lieberman* v. *Van de Carr* (ref. 4), which held that milk might be prohibited from being sold; and the Court also cited the case of *Reid* v. *Colorado*,[9] which held, inferentially, that impure milk could be prevented even from entering a city.

In 1916 the United States Supreme Court decided that a State law forbidding the sale, as ice cream, of a product not containing a certain portion of butter fat was a valid exercise of the police power of the State;[10] and in 1919 it sustained as constitutional an Ohio statute penalizing the sale of condensed milk unless made from unadulterated milk from which the cream had not been removed.[11] In the latter case the State law was held to apply to a skimmed condensed milk to which a vegetable fat had been added, even though the product was manufactured in another State and shipped

[8] *Adams* v. *Milwaukee* (1913), 228 U. S. 572, 57 L. Ed. 971, 33 S. Ct. 610.
[9] *Reid* v. *Colorado* (1902), 187 U. S. 137, 47 L. Ed. 108, 23 S. Ct. 92, 12 Am. Cr. R. 506.
[10] *Hutchinson Ice Cream Co.* v. *Iowa* (1916), 242 U. S. 153, 61 L. Ed. 217, 37 S. Ct. 28, Ann. Cas. 1917 B 643.
[11] *Hebe Co.* v. *Shaw* (1919) 248 U. S. 297, 63 L. Ed. 255, 39 S. Ct. 125.

in unopened cases into Ohio. Three justices dissented from the majority opinion of the Court, as delivered by the late Mr. Justice Holmes.

An important decision regarding the prohibition of entry, into a State, of cattle infected with a disease transmissible to man, either directly or through ingestion of contaminated milk, was handed down by the United States Supreme Court in 1933.[12] In this case an order by a State commissioner of agriculture, made pursuant to State law, required that all cattle shipped into the State should be accompanied by an official certificate showing them to be free from Bang's disease, the infecting organism of which is the cause of undulant fever in human beings. This order was sustained as not repugnant to the interstate commerce clause of the Constitution and as being an appropriate measure to safeguard the public health.

On several previous occasions the United States Supreme Court had upheld the power of a State to prevent the entry of diseased cattle (ref. 1). In *Reid* v. *Colorado* (ref. 9), for example, a State law, prohibiting the importation of any cattle into the State between April and November from south of the 36th parallel of north latitude, unless a certificate was procured from a State veterinarian showing that they were free from infections and contagious diseases and had not been exposed to such diseases within 90 days, was sustained as a constitutional exercise of the police power, regardless of any effect upon interstate commerce.

In 1934 the Supreme Court was called upon to adjudicate a State milk control law which was somewhat different in character from the others previously before the Court. This law created a State milk control board in New York, authorized it to investigate and regulate the milk industry, required it to fix minimum and maximum wholesale and retail prices for milk, and empowered it to license all milk dealers and revoke their licenses for specified causes. The law, which had been sustained by the Court of Appeals of New York,[13] was upheld by the United States Supreme Court in a 5 to 4 decision.[14]

On behalf of the majority of the Court, Mr. Justice Roberts stated that milk is not a public utility, but that the milk industry is one subject to reasonable regulation in the public interest and that it has been regulated by numerous laws, the constitutionality of which has been frequently upheld by courts of last resort. The particular law in question was considered not to be a violation of the right of due process of law. The Court said:

> The Constitution does not secure to anyone liberty to conduct his business in such fashion as to inflict injury upon the public at large, or upon any substantial

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[12] *Mintz* v *Baldwin* (1933), 289 U. S 346, 53 S Ct. 611, 77 L. Ed 1245

[13] *People* v. *Nebbia* (1933), 262 N. Y 259, 186 N E. 694.

[14] *Nebbia* v. *New York* (1934), 291 U. S 502, 78 L. Ed 940, 54 S. Ct. 505, 89 A L R. 1469.

group of the people. Price control, like any other form of regulation, is unconstitutional only if arbitrary, discriminatory, or demonstrably irrelevant to the policy the legislature is free to adopt, and hence an unnecessary and unwarranted interference with individual liberty.

In this noteworthy decision, attention was also directed to the findings of a legislative commission of the State that milk is an essential article of diet which must be properly safeguarded, that the dairy industry is of vast significance to the economic life of the people, that there is a huge surplus of milk, and that a satisfactory stabilization of prices for fluid milk requires the burden of surplus milk to be distributed equally among producers and distributors in the milk shed.

This same State law was upheld in another case decided later in 1934.[15] In this instance a milk dealer had assailed the orders of the milk control board, which fixed minimum retail selling prices and also the minimum prices to be paid to producers, as responsible for the economic plight of this particular dealer. The Supreme Court decided, however, that the efficiency with which the business was conducted, rather than the operation of the law, governed the economic success or failure of a concern, and pointed out that the fourteenth amendment does not protect industry against the hazards of competition.

A provision of this same State law, establishing a differential of 1 cent a quart in favor of dealers not having "well-advertised" names in their sale of milk in cities of more than a million inhabitants, was contested by a leading milk company in New York City. An application for an injunction against this provision of the act having been dismissed in a Federal statutory court, an appeal was taken to the United States Supreme Court, which decided in a comprehensive opinion that the company should be permitted to produce facts in support of its contention that the law was discriminatory.[16] The case was, therefore, remanded to the lower court to obtain these data and to come to a decision as a result of them.

The two decisions sustaining the New York Milk Control Law were virtually nullified, so far as the practical application of the law was concerned, by another opinion, delivered in 1935,[17] in which the Supreme Court held that this State law did not extend to milk purchased outside the State and sold in New York in the original container, since this is a transaction in interstate commerce. The court stated that New York had no power to project its legislation into another State, nor to prohibit the introduction within its territory of wholesome milk, whether at a high price or at a low one. Such

[15] *Hegeman Farms Corp* v. *Baldwin* (1934), 293 U. S. 163, 55 S. Ct. 7.
[16] *Borden's Farm Products Co.* v. *Baldwin* (1934), 293 U. S 194, 55 S. Ct. 187.
[17] *Baldwin* v. *G. A. F. Seelig, Inc.* (1935), 294 U. S. 511, 55 S. Ct. 497.

action by the State could not be regarded as sanitary regulation under the police power, nor as a procedure intended mainly to protect the public health.

SUMMARY

As the result of a number of decisions of the United States Supreme Court on the constitutionality of the control of milk and milk products by States and their political subdivisions, the following legal principles may be adduced:

The State may require licenses or permits for the sanitary production and distribution of milk and milk products and may delegate the administration of such licenses or permits to ministerial boards or officers, but the licensing power must be exercised in a reasonable manner and without discrimination.

Standards for milk and milk products, adopted by States and municipalities in the interests of the public health, form a valid exercise of the police power of the State.

Requirements by a city that all milk shipped into the city shall be produced in a sanitary manner from cattle free from diseases dangerous to the public health and that impure and unwholesome milk may be confiscated and destroyed do not violate the constitutional rights of individuals.

Prohibition, by a State of the entry of cattle suffering from diseases transmissible to man, either directly or through infected milk, is justifiable under the police power and is not an unwarranted interference with interstate commerce.

A State may adopt legislation providing for reasonable regulation of the minimum and maximum wholesale and retail prices of milk, but such regulation will not apply to milk shipped lawfully in interstate commerce.

DEATHS DURING WEEK ENDED SEPT. 14, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 14, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	6,928	7,071
Deaths per 1,000 population, annual basis	9.7	9.9
Deaths under 1 year of age	457	508
Deaths under 1 year of age per 1,000 estimated live births	42	47
Deaths per 1,000 population, annual basis, first 37 weeks of year	11.5	11.5
Data from industrial insurance companies:		
Policies in force	67,573,738	67,263,250
Number of death claims	10,767	11,176
Death claims per 1,000 policies in force, annual rate	8.3	8.7
Death claims per 1,000 policies, first 37 weeks of year, annual rate	9.8	10.1

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended September 21, 1935, and September 22, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 21, 1935, and Sept. 22, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934
New England States:								
Maine	2	-------	1	-------	10	1	0	1
New Hampshire	-------	-------	-------	-------	-------	-------	0	0
Vermont	-------	-------	-------	-------	9	-------	0	0
Massachusetts	4	5	-------	-------	6	8	3	2
Rhode Island	-------	-------	-------	-------	7	-------	0	1
Connecticut	2	3	-------	3	9	9	0	0
Middle Atlantic States:								
New York	29	14	[1] 8	[1] 6	72	52	17	0
New Jersey	10	4	2	6	19	11	3	1
Pennsylvania	25	26	-------	-------	30	74	3	0
East North Central States:								
Ohio	32	32	5	4	7	14	3	1
Indiana	53	33	14	15	12	29	2	0
Illinois	56	40	7	13	21	31	2	6
Michigan	6	5	1	-------	23	9	1	1
Wisconsin	5	3	36	10	41	52	1	1
West North Central States:								
Minnesota	6	6	2	2	11	18	1	1
Iowa	18	6	-------	-------	1	5	0	1
Missouri	52	45	63	39	9	13	0	2
North Dakota	7	5	1	1	2	15	0	1
South Dakota	1	-------	-------	-------	-------	1	0	0
Nebraska	8	3	-------	-------	2	-------	1	1
Kansas	5	10	1	-------	2	5	0	0
South Atlantic States:								
Delaware	2	-------	5	-------	9	-------	0	0
Maryland [2, 3, 4]	8	13	3	28	5	6	3	0
District of Columbia	10	10	-------	-------	-------	-------	2	0
Virginia [4]	35	34	-------	-------	8	6	2	1
West Virginia	43	44	32	20	5	12	1	1
North Carolina [3, 4]	67	65	5	3	15	17	0	1
South Carolina [4]	17	13	161	132	2	2	0	0
Georgia [4]	34	30	0	-------	0	-------	0	2
Florida	15	8	1	3	5	1	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 21, 1935, and Sept. 22, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept 21, 1935	Week ended Sept. 22, 1934
East South Central States:								
Kentucky	66	36	2		12	32	1	1
Tennessee	56	64	26	15		13	7	0
Alabama [4]	69	54	13	10	3	20	2	0
Mississippi [3]	29	22					0	1
West South Central States:								
Arkansas	11	9	10	2	2		0	0
Louisiana	32	22	8	7	9	11	1	0
Oklahoma [5]	19	7	13	28		1	0	0
Texas [4]	74	44	27	38	7	5	0	0
Mountain States:								
Montana		2	4	14	8	1	0	1
Idaho	2	2	1			1	0	0
Wyoming		1			14		0	0
Colorado [3]	6	5			1	16	0	1
New Mexico	8		2	1		10	0	0
Arizona			3	8		3	0	0
Utah [2]					2	1	0	0
Pacific States:								
Washington		1			6	15	2	0
Oregon		1	11	20	36	5	0	0
California	34	19	10	15	77	44	1	0
Total	953	746	478	442	519	569	59	29
First 38 weeks of year	21,427	23,434	105,936	51,422	698,294	671,536	4,493	1,761

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934
New England States:								
Maine	18	1	3	11	0	0	1	2
New Hampshire	5	0	1	6	0	0	0	0
Vermont	5	0	5	6	0	0	0	1
Massachusetts	132	2	55	79	0	0	1	9
Rhode Island	37	0	12	5	0	0	1	2
Connecticut	32	0	37	8	0	0	6	3
Middle Atlantic States:								
New York	198	19	126	112	0	0	39	31
New Jersey	52	4	21	39	0	0	5	13
Pennsylvania	12	6	97	122	0	0	43	58
East North Central States:								
Ohio	3	16	122	193	0	3	35	30
Indiana	3	3	53	66	1	0	16	19
Illinois	12	9	230	188	1	0	40	56
Michigan	45	20	74	76	0	0	22	15
Wisconsin	3	6	95	98	2	1	3	3
West North Central States:								
Minnesota	6	1	64	42	1	0	13	1
Iowa	3	1	61	39	2	0	7	18
Missouri	1	2	49	30	0	0	21	17
North Dakota	4	2	18	12	1	1	6	3
South Dakota	0	2	4	3	1	0	3	1
Nebraska	1	0	13	12	0	2	2	1
Kansas	2	6	48	29	14	0	12	10
South Atlantic States:								
Delaware	0	0	2	2	0	0	1	2
Maryland [2, 3, 4]	5	1	23	29	0	0	22	28
District of Columbia	7	0	12	8	0	0	1	5
Virginia [4]	8	1	19	47	0	0	28	43
West Virginia	2	5	61	91	0	0	20	58
North Carolina [3, 4]	8	0	58	83	0	1	31	9
South Carolina [4]	0	0	8	13	0	0	18	24
Georgia [4]	1	3		16	0	0	28	23
Florida	0	0	7	5	0	0	8	2

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 21, 1935 and Sept. 22, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934	Week ended Sept. 21, 1935	Week ended Sept. 22, 1934
East South Central States:								
Kentucky	18	1	63	58	0	0	21	62
Tennessee	4	1	48	59	0	0	38	42
Alabama [4]	0	2	18	18	0	0	28	30
Mississippi [2]	1	1	15	19	0	0	4	7
West South Central States:								
Arkansas	3	0	5	6	0	0	6	6
Louisiana	2	0	16	13	0	0	39	15
Oklahoma [5]	0	0	8	9	0	0	26	21
Texas [4]	1	3	20	24	0	8	48	65
Mountain States:								
Montana	0	11	36	9	0	1	2	7
Idaho	0	6	17	6	0	0	4	9
Wyoming	1	2	----	4	0	0	0	0
Colorado [3]	0	2	31	25	0	1	2	5
New Mexico	1	1	2	7	0	0	18	14
Arizona	2	2	5	10	0	0	3	3
Utah [2]	0	2	21	10	0	0	1	3
Pacific States:								
Washington	0	71	23	18	4	6	3	6
Oregon	0	6	20	21	0	0	4	7
California	27	53	115	96	1	0	18	16
Total	665	274	1,841	1,882	28	24	698	805
First 38 weeks of year	7,939	5,566	186,824	154,639	5,451	3,855	12,802	15,197

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended Sept. 21, 1935, 4 cases, as follows: Maryland, 1; North Carolina, 2; Colorado, 1.
[4] Typhus fever, week ended Sept. 21, 1935, 49 cases, as follows: Maryland, 1; Virginia, 1; North Carolina, 3; South Carolina, 1; Georgia, 20; Alabama, 8; Texas, 15.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August 1935										
Alabama	2	104	54	2,493	26	49	9	34	1	69
California	23	87	33	23	472	18	134	284	13	52
Georgia	6	67	20	757	15	37	3	32	1	192
Illinois	26	104	30	126	201	----	58	452	2	180
Kansas	4	18	2	19	25	----	3	63	2	56
Louisiana	3	61	56	900	29	11	16	26	0	74
Maine	----	2	----	----	123	----	31	29	0	19
Maryland	13	14	2	6	26	3	24	53	0	75
Massachusetts	4	23	----	1	130	2	484	175	0	15
Michigan	5	24	14	21	212	----	244	170	7	52
Minnesota	4	14	2	----	32	----	14	141	2	72
North Dakota	1	3	29	----	23	----	5	30	0	3
Oklahoma [1]	3	48	61	539	15	29	0	47	0	177
Oregon	4	6	28	8	239	----	2	69	5	28
South Dakota	2	11	2	1	2	----	1	41	8	10
Tennessee	13	68	25	952	21	43	21	64	0	264
Texas	1	243	101	4,993	91	63	15	141	22	299
West Virginia	11	96	165	1	41	----	19	165	1	109
Wisconsin	5	10	67	----	328	----	19	213	3	14
Wyoming	----	1	1	----	45	----	0	21	4	3

[1] Exclusive of Oklahoma City and Tulsa.

August 1935

Disease and State	Cases
Actinomycosis:	
Illinois	1
Anthrax:	
Massachusetts	1
South Dakota	2
Chicken pox:	
Alabama	6
California	246
Georgia	7
Illinois	101
Kansas	7
Louisiana	1
Maine	28
Maryland	9
Massachusetts	97
Michigan	90
Minnesota	40
North Dakota	6
Oklahoma [1]	3
Oregon	41
South Dakota	7
Tennessee	10
Texas	9
West Virginia	3
Wisconsin	93
Wyoming	2
Conjunctivitis:	
Georgia	5
Dengue:	
Alabama	17
Georgia	6
Texas	23
Diarrhea:	
Maryland	86
Dysentery:	
Alabama (amoebic)	6
California (amoebic)	5
California (bacillary)	23
Georgia (amoebic)	5
Georgia (bacillary)	17
Illinois (amoebic)	3
Illinois (bacillary)	18
Illinois (amoebic carriers)	40
Kansas (amoebic)	1
Louisiana (amoebic)	12
Louisiana (bacillary)	4
Maryland	35
Massachusetts (bacillary)	2
Michigan (amoebic)	4
Michigan (bacillary)	1
Minnesota (amoebic)	3
Minnesota (bacillary)	3
Oklahoma [1]	23
Tennessee (amoebic)	5
Tennessee (bacillary)	16
Texas (bacillary)	47
West Virginia	2
Epidemic encephalitis:	
Alabama	4
California	6
Illinois	10
Kansas	6
Louisiana	1
Maryland	1
Massachusetts	2
Michigan	9
Oklahoma [1]	1
Food poisoning:	
California	15
German measles:	
California	165
Illinois	40
Kansas	3
Maine	41
Maryland	18
Massachusetts	89
Michigan	37
Wisconsin	109
Glanders:	
Illinois	1

August 1935—Continued

Disease and State	Cases
Hookworm disease:	
Georgia	115
Louisiana	16
Tennessee	1
Impetigo contagiosa:	
Illinois	4
Kansas	2
Maryland	19
Oklahoma [1]	5
Oregon	8
Tennessee	9
Jaundice, epidemic:	
California	2
Lead poisoning:	
Illinois	4
Massachusetts	1
Michigan	3
Mumps:	
Alabama	28
California	294
Georgia	45
Illinois	140
Kansas	62
Louisiana	2
Maine	41
Maryland	39
Massachusetts	225
Michigan	85
North Dakota	24
Oklahoma [1]	12
Oregon	87
South Dakota	29
Tennessee	27
Texas	124
West Virginia	12
Wisconsin	405
Wyoming	14
Ophthalmia neonatorum:	
Alabama	1
California	1
Illinois	8
Louisiana	1
Maryland	1
Massachusetts	77
South Dakota	1
Tennessee	2
Paratyphoid fever:	
California	4
Georgia	3
Illinois	7
Kansas	13
Louisiana	2
Maryland	2
Michigan	5
Minnesota	1
Oregon	1
Tennessee	8
Texas	19
West Virginia	50
Puerperal septicemia:	
Illinois	1
Rabies in animals:	
Alabama	62
California	50
Illinois	22
Kansas	4
Louisiana	37
Massachusetts	6
Michigan	2
Oregon	1
Relapsing fever:	
California	3
Rocky Mountain spotted fever:	
Alabama	2
Maryland	10
North Dakota	1
Oregon	1
South Dakota	2
West Virginia	4

August 1935—Continued

Disease and State	Cases
Scabies:	
Oregon	3
Screw worm infection:	
Georgia	1
Septic sore throat:	
California	12
Georgia	14
Illinois	1
Kansas	6
Louisiana	7
Maryland	9
Massachusetts	7
Michigan	5
Minnesota	1
Oklahoma [1]	36
Oregon	4
Tennessee	2
Wisconsin	2
Wyoming	2
Tetanus:	
Alabama	2
California	5
Georgia	2
Illinois	9
Kansas	1
Louisiana	6
Maryland	3
Massachusetts	3
Michigan	3
Oklahoma [1]	1
Trachoma:	
California	14
Georgia	1
Illinois	51
Kansas	2
Massachusetts	3
Minnesota	73
North Dakota	2
Oklahoma [1]	3
South Dakota	1
Tennessee	35
Wisconsin	1
Trichinosis:	
California	5
Maine	1
Massachusetts	2
Tularaemia:	
California	2
Georgia	4
Illinois	3
Louisiana	2
Minnesota	7
Oregon	1
Texas	1
Wyoming	2
Typhus fever:	
Alabama	70
Georgia	80
Illinois	1
Louisiana	3
Maryland	3
Massachusetts	1
Texas	47
Undulant fever:	
Alabama	7
California	5
Georgia	9
Illinois	12
Kansas	8
Louisiana	10
Maine	5
Maryland	4
Massachusetts	2
Michigan	9
Minnesota	6
Oregon	1
South Dakota	1
Texas	1
Wisconsin	2

[1] Exclusive of Oklahoma City and Tulsa.

August 1935—Continued

Disease and State	Cases
Vincent's infection:	
Illinois	11
Kansas	1
Maine	3
Maryland	22
Michigan	12
Oregon	6
Tennessee	5
Whooping cough:	
Alabama	60
California	483
Whooping cough—Con.	
Georgia	77
Illinois	1, 146
Kansas	157
Louisiana	29
Maine	83
Maryland	120
Massachusetts	293
Michigan	1, 247
Minnesota	84
North Dakota	32
Whooping cough—Con.	
Oklahoma [1]	82
Oregon	52
South Dakota	32
Tennessee	147
Texas	218
West Virginia	99
Wisconsin	846
Wyoming	30

[1] Exclusive of Oklahoma City and Tulsa.

TYPHOID FEVER IN UMATILLA COUNTY, OREG.

The State health officer of Washington has reported the removal during August of 12 cases of typhoid fever from C. C. C. Camp Mottet Creek, in Umatilla County, Oreg., to the Veterans' Administration Facility Hospital at Walla Walla, Wash.

WEEKLY REPORTS FROM CITIES

City reports for week ended Sept. 14, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	1	0	0	2	0	0	0	0	4	18
New Hampshire:											
Concord	0		0	0	0	0	0	1	0	0	10
Manchester	0		0	0	1	0	0	0	0	0	19
Nashua	0			0	0	0	0	0	0	0	
Vermont:											
Barre											
Burlington	0		0	0	0	0	0	0	0	0	8
Rutland	0		0	0	1	0	0	0	0	0	6
Massachusetts:											
Boston	2		0	11	11	18	0	4	1	7	166
Fall River	0		0	0	2	2	0	1	0	9	27
Springfield	0		0	0	1	2	0	1	0	6	28
Worcester	0		0	1	1	11	0	3	0	1	49
Rhode Island:											
Pawtucket	0			0	0	0	0	0	0	0	14
Providence	1		0	1	3	3	0	2	0	18	53
Connecticut:											
Bridgeport	0		0	0	0	0	0	0	0	1	23
Hartford	1		0	0	1	3	0	1	1	10	27
New Haven	0		0	0	0	1	0	0	0	10	37
New York:											
Buffalo	2		0	2	4	9	0	3	4	15	114
New York	18	3	2	19	63	25	0	69	20	157	1, 135
Rochester	0		0	1	0	3	0	0	3	4	55
Syracuse	0		0	12	0	2	0	2	0	10	39
New Jersey:											
Camden	0	2	1	0	1	1	0	1	0	5	28
Newark	3	1	0	0	1	7	0	14	0	30	90
Trenton	0		0	0	0	3	0	1	0	0	31
Pennsylvania:											
Philadelphia	4	1	0	5	13	16	0	14	9	86	360
Pittsburgh	2		0	1	14	9	0	10	0	23	114
Reading	0		0	0	0	0	0	0	0	1	25
Scranton	0			0		0	0		0	0	
Ohio:											
Cincinnati	2		1	2	4	6	0	9	2	5	106
Cleveland	1	20	0	2	15	4	0	10	3	57	184
Columbus	2		0	0	3	9	0	6	2	3	75
Toledo	1		0	1	7	7	0	0	0	14	54

City reports for week ended Sept. 14, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
		Cases	Deaths								
Indiana:											
Anderson	0	------	0	0	2	0	0	0	0	1	4
Fort Wayne	------	------	------	------	------	------	------	------	------	------	------
Indianapolis	0	------	0	0	11	6	0	0	0	19	107
Muncie	2	------	0	0	0	0	0	0	0	0	7
South Bend	1	------	0	0	0	1	0	0	3	0	------
Terre Haute	0	------	0	0	0	2	0	0	0	0	15
Illinois:											
Alton	3	------	0	0	0	1	0	0	0	0	7
Chicago	16	3	2	8	22	41	0	25	3	99	629
Elgin	0	------	0	0	2	0	0	0	0	0	12
Moline	0	------	0	0	0	0	0	0	0	1	9
Springfield	0	------	0	0	1	0	0	0	0	3	22
Michigan:											
Detroit	1	1	1	5	18	7	0	23	7	108	217
Flint	2	------	1	0	2	7	0	0	0	8	16
Grand Rapids	0	------	1	0	0	3	0	0	1	7	44
Wisconsin:											
Kenosha	0	------	0	0	0	2	0	0	0	1	8
Milwaukee	0	------	0	3	3	9	0	3	0	59	88
Racine	0	------	0	0	1	8	0	0	0	7	7
Superior	1	------	0	0	0	1	0	0	0	1	10
Minnesota:											
Duluth	0	------	0	0	1	3	0	1	0	2	17
Minneapolis	3	------	0	3	0	15	0	2	1	3	88
St. Paul	0	------	0	0	2	5	0	0	0	13	51
Iowa:											
Cedar Rapids	0	------	0	0	0	0	0	0	0	0	0
Davenport	1	------	------	0	------	0	0	------	0	0	------
Des Moines	0	------	------	0	------	7	0	------	0	0	36
Sioux City	0	------	------	0	------	4	0	------	0	1	------
Waterloo	3	------	------	0	------	2	0	------	0	0	------
Missouri:											
Kansas City	1	------	0	1	3	3	0	3	0	4	70
St. Joseph	3	------	0	0	1	2	0	1	0	1	19
St. Louis	7	------	0	2	7	8	0	0	3	3	181
North Dakota:											
Fargo	0	------	0	0	0	0	0	0	0	0	8
Grand Forks	0	------	------	1	------	0	0	------	0	0	------
Minot	0	------	0	0	0	0	0	0	0	0	0
South Dakota:											
Aberdeen	0	------	------	0	------	4	0	------	0	0	------
Nebraska:											
Omaha	9	------	0	1	4	2	0	1	0	0	41
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	4
Topeka	0	------	0	0	1	2	0	0	0	5	22
Wichita	2	------	0	0	3	3	0	1	0	0	26
Delaware:											
Wilmington	0	------	0	1	0	0	0	0	0	2	21
Maryland:											
Baltimore	6	1	1	0	8	8	0	13	2	29	171
Cumberland	0	------	0	0	0	1	0	0	1	0	7
Frederick	------	------	------	------	------	------	------	------	------	------	------
District of Columbia:											
Washington	15	------	0	0	4	5	0	16	1	7	126
Virginia:											
Lynchburg	1	------	0	0	0	0	0	0	2	5	10
Norfolk	0	------	0	0	5	2	0	3	1	0	49
Richmond	0	------	0	0	3	3	0	2	2	0	38
Roanoke	1	------	0	0	0	2	0	2	2	2	13
West Virginia:											
Charleston	6	------	0	0	1	3	0	1	0	0	24
Huntington	2	------	------	0	------	4	0	------	0	0	------
Wheeling	1	------	0	0	0	2	0	1	2	0	16
North Carolina:											
Gastonia	0	------	0	0	1	0	0	0	0	0	4
Raleigh	------	------	------	------	------	------	------	------	------	------	------
Wilmington	0	------	0	0	1	1	0	0	1	1	9
Winston-Salem	0	------	0	0	0	2	0	0	0	0	15
South Carolina:											
Charleston	0	------	0	0	1	0	0	1	0	0	20
Columbia	------	------	------	------	------	------	------	------	------	------	------
Florence	0	------	0	0	1	0	0	0	0	0	10
Greenville	0	------	0	0	0	1	0	0	0	0	11

City reports for week ended Sept. 14, 1935—Continued

State and city	Diphtheria, cases	Influenza		Measles, cases	Pneumonia, deaths	Scarlet fever, cases	Smallpox, cases	Tuberculosis, deaths	Typhoid fever, cases	Whooping cough, cases	Deaths, all causes
		Cases	Deaths								
Georgia:											
Atlanta	7	5	0	0	4	2	0	5	3	1	73
Brunswick	1	------	0	1	0	0	0	0	0	0	1
Savannah	4	------	0	0	3	0	0	2	0	0	24
Florida:											
Miami	0	------	0	0	1	1	0	2	0	0	28
Tampa	0	------	0	2	0	1	0	0	0	0	23
Kentucky:											
Ashland	2	------	------	0	------	0	0	------	0	0	------
Covington	0	------	0	0	0	0	0	0	1	0	9
Lexington	2	------	0	1	2	0	0	2	0	0	15
Louisville	2	------	0	0	4	8	0	2	1	5	68
Tennessee:											
Knoxville	5	------	0	0	0	0	0	1	2	0	17
Memphis	3	------	0	0	4	3	0	3	1	5	68
Nashville	3	------	0	0	3	2	0	2	2	1	35
Alabama:											
Birmingham	2	2	0	0	0	3	0	2	3	2	39
Mobile	2	------	1	0	0	0	0	0	0	0	13
Montgomery	1	------	------	0	------	0	0	------	0	0	------
Arkansas:											
Fort Smith	0	------	------	0	------	0	0	------	0	0	------
Little Rock	3	------	0	0	1	1	0	1	0	0	0
Louisiana:											
New Orleans	3	2	2	3	7	0	0	8	1	0	140
Shreveport	0	------	0	0	2	1	0	0	1	0	32
Oklahoma:											
Oklahoma City	2	4	0	0	1	0	0	1	0	4	38
Texas:											
Dallas	9	------	0	0	2	5	0	1	0	3	41
Fort Worth	4	------	0	0	1	2	0	0	0	1	27
Galveston	0	------	0	0	0	0	0	1	0	0	14
Houston	18	------	0	0	3	2	0	6	2	0	63
San Antonio	3	------	0	0	1	0	0	5	0	0	41
Montana:											
Billings	0	------	0	0	0	0	0	0	0	2	6
Great Falls	0	------	0	1	0	0	0	0	0	2	4
Helena	0	------	0	1	0	0	0	0	0	0	4
Missoula	0	------	0	0	1	2	0	0	1	0	4
Idaho:											
Boise	0	------	0	0	0	1	0	0	0	0	6
Colorado:											
Colorado Springs	0	------	0	0	1	3	0	3	0	0	12
Denver	7	------	0	2	0	3	0	3	0	5	78
Pueblo	1	------	0	0	0	5	0	1	1	2	9
New Mexico:											
Albuquerque	0	------	0	0	2	0	0	3	2	0	22
Utah:											
Salt Lake City	0	------	0	1	0	11	0	3	0	10	35
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	5
Washington:											
Seattle	0	------	0	1	3	2	0	7	2	3	76
Spokane	0	------	0	3	1	0	0	0	0	2	28
Tacoma	0	------	0	0	1	0	0	0	1	0	30
Oregon:											
Portland	0	------	0	3	3	15	0	2	0	3	79
Salem	0	1	------	0	------	0	0	------	0	0	0
California:											
Los Angeles	5	5	0	6	8	13	0	17	0	6	240
Sacramento	0	------	0	0	1	3	0	0	3	1	19
San Francisco	2	------	2	11	9	12	0	7	1	17	197

City reports for week ended Sept. 14, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Maine:			
Portland	0	0	1
Massachusetts:			
Boston	0	0	88
Fall River	0	0	6
Springfield	0	0	3
Worcester	0	0	1
Rhode Island:			
Pawtucket	0	0	2
Providence	0	0	15
Connecticut:			
Bridgeport	0	0	5
Hartford	0	0	2
New Haven	0	0	1
New York:			
New York	17	6	206
Rochester	--------	0	1
Syracuse	0	0	2
New Jersey:			
Camden	1	1	0
Newark	0	0	5
Pennsylvania:			
Philadelphia	2	3	13
Ohio:			
Cincinnati	0	1	0
Cleveland	0	1	1
Columbus	1	1	0
Toledo	0	0	1
Indiana:			
Indianapolis	1	0	0
Illinois:			
Chicago	3	2	4
Michigan:			
Detroit	0	0	12
Flint	1	0	3
Grand Rapids	0	0	4
Minnesota:			
Minneapolis	1	1	2
St. Paul	0	0	2
Missouri:			
St. Louis	0	0	2
Maryland:			
Baltimore	0	2	4
District of Columbia:			
Washington	2	1	9
Virginia:			
Richmond	0	0	2
West Virginia:			
Wheeling	1	0	0
Kentucky:			
Louisville	0	1	13
Tennessee:			
Nashville	4	1	1
Louisiana:			
New Orleans	0	0	1
Texas:			
Houston	0	0	1
Oregon:			
Portland	0	0	1
California:			
Los Angeles	0	0	7
San Francisco	0	0	1

Epidemic encephalitis.—Cases: New York, 1; Columbus, 1; Moline, 1; Milwaukee, 1; Kansas City, Mo., 3.

Pellagra.—Philadelphia, 1; Gastonia, 1; Charleston, S. C., 3; New Orleans, 1; Dallas, 1.

Rabies in man.—Deaths: Charleston, S. C., 1; Seattle, 1.

Typhus fever.—Cases: Wilmington, N. C., 1; Atlanta, 6; Savannah, 4; Dallas, 2; Houston, 1. Deaths: Terre Haute, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended September 7, 1935.—During the 2 weeks ended September 7, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2			1			3
Chicken pox			2	25	44	13	48	5	19	156
Diphtheria		4	2	42	5	6	1	3		63
Dysentery				2	5					7
Erysipelas				4	5	1		1	3	14
Influenza		4			23				4	31
Lethargic encephalitis					1					1
Measles		7	396	51	85	1	7	14	38	599
Mumps		1			40	27	115	7	17	207
Paratyphoid fever	13				5				1	19
Pneumonia		1			5				6	12
Poliomyelitis	1			3	15	2		20	5	46
Scarlet fever	5	12		89	61	14	9	14	23	227
Smallpox									3	3
Trachoma									2	2
Tuberculosis	7	3	22	107	95	22	13	11	27	307
Typhoid fever	6	1	10	53	34	7	7	1	4	123
Undulant fever				1	4		2			7
Whooping cough		18	5	132	346	54	103	7	27	692

GERMANY

Diphtheria.—According to a report dated August 26, 1935, there was a serious epidemic of diphtheria in Germany. First signs of an increased prevalence of the disease appeared toward the end of 1933, and the epidemic reached its height late in 1934. The following table shows the number of cases of diphtheria reported in Germany during the last 3 years, and during the first 30 weeks of 1935.

	Cases		Cases
1932	69,179	1934	114,000
1933	74,559	First 30 weeks, 1935	70,000

Vital statistics—First quarter 1935.—Following are vital statistics for Germany for the first quarter of 1935:

Number of marriages	126,819	Total deaths	226,967
Number of marriages per 1,000 inhabitants	7.7	Deaths per 1,000 inhabitants	13.8
Number of live births	328,846	Deaths under 1 year of age	25,201
Number of live births per 1,000 inhabitants	20	Deaths under 1 year of age per 100 live births	7.7
Number of stillbirths	8,989		

JAMAICA

Communicable diseases—4 weeks ended September 7, 1935.—During the 4 weeks ended September 7, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	6	11	Puerperal fever		3
Diphtheria	1		Poliomyelitis		1
Dysentery	10	4	Scarlet fever		1
Erysipelas		1	Tuberculosis	43	76
Leprosy		3	Typhoid fever	16	66

TUNISIA

Bubonic Plague—Tunis.—According to a report dated September 15, 1935, 9 cases of bubonic plague had been reported in Tunis from June 17 to September 7, 1935. All but two of these cases occurred in the dock area. It was said that vigorous efforts were being made by the health authorities of Tunis to control the situation.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 27, 1935, pages 1351-1368. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 25, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

Siam—Smudprakar.—During the week ended September 7, 1935, one case of cholera was reported at Smudprakar, Siam.

Plague

Brazil—Bahia State.—A report dated September 21, 1935, states that two cases of plague were reported in the interior of Bahia State, Brazil.

Ecuador—Guayaquil.—A report dated September 13, 1935, states that from August 6 to September 9, a total of eight cases of plague occurred in Guayaquil, Ecuador.

Hawaii Territory—Hawaii Island—Hamakua District—Paauhau sector.—On September 14, 1935, one plague-infected rat was reported in Paauhau sector, Hamakua District, Island of Hawaii, Hawaii Territory.

Smallpox

Eritrea.—During the week ended August 24, 1935, five cases of smallpox were reported in the interior of Eritrea.

Typhus fever

Egypt—Damietta.—During the week ended September 14, 1935, one case of typhus fever was reported at Damietta, Egypt.

Iraq—Baghdad.—During the week ended August 31, 1935, one case of typhus fever was reported at Baghdad, Iraq.

UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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A NONFLAMMABLE PYRETHRUM SPRAY FOR USE IN AIRPLANES

By C. L. WILLIAMS, *Senior Surgeon*, and W. C. DREESSEN, *Passed Assistant Surgeon, United States Public Health Service*

The increase of international travel by air has brought forth new problems in controlling the spread of quarantinable diseases. With specific reference to yellow fever, the destruction of infected *Aëdes aegypti* on airplanes while in flight presents itself as one means of restricting the possible spread of this disease. In order to accomplish this end, however, it is necessary to have an agent which will kill these mosquitoes without hazard to human occupants of the airplanes. Pyrethrum in a kerosene base answers this purpose in certain respects; it is comparatively innocuous to human beings while at the same time lethal to *Aëdes* in low concentrations. It has the disadvantage of being flammable.

Recent observations [1] at the New Orleans quarantine station showed that only 2 to 4 grams per 1,000 cubic feet of a pyrethrum concentrate in kerosene (2 grams of pyrethrins per 100 cc) were lethal to *Aedes* when used as a fine spray. Since that time additional observations have been made at this station with pyrethrum in various and modified bases or vehicles with the object of developing a nonflammable mixture.

CONDITIONS AND METHOD OF EXPERIMENTATION

The conditions under which mosquitoes were secured for experimentation were essentially the same as described in a previous report.[1] Briefly, a pure colony of *Aëdes aegypti* was maintained and bred under controlled conditions. Larvae, taken from troughs in the breeding cages, were fed on yeast or bread crumbs, and, as pupae appeared they were separated and placed in test tubes. Freshly hatched imagoes that appeared in the tubes were transferred to test cages made of mosquito netting. Here they were fed on sugar water until the cage was ready for testing. In practically all cases the mosquitoes were from 1 to 3 days old when exposed to the insecticide.

[1] The destruction of mosquitoes in airplanes. By C. L. Williams and W. C. Dreessen. Pub. Health Rep., vol. 50, no. 20, May 17, 1935, pp. 663–671.

The method of experimentation was to blow the insecticide into a closed room in the form of a very fine spray. Immediately after spraying, cages of test mosquitoes were placed therein. The room was then sealed during the shortest period of exposure [2] (as shown in the tables), after which it was opened and one of the cages removed. It was again closed and sealed for an additional exposure period, at the end of which time the second cage was removed. The test mosquitoes were thereafter kept under observation for at least 24 hours unless they revived or survived the exposure, in which cases they were usually observed for a week, and their ability to bite and to feed on human blood was noted. The results of the tests have been so recorded in the tables that the percentage of mosquitoes knocked down at the end of the period of exposure and the percentage dead in 24 hours are shown.

PYRETHRUM EXTRACT IN CARBON TETRACHLORIDE BASE

Pyrethrum extract (2 percent pyrethrins) in a carbon tetrachloride base was tested. Data on these experiments are shown in table 1. It will be observed that relatively large amounts of insecticide were necessary to secure uniformly lethal effects. It is suggested from these findings that the lethal concentration of this agent for *Aedes aegypti* is between 40 and 60 cc per 1,000 cubic feet. The latter amount was too great to be tolerated by observers who were accustomed to remain in the room during the spraying operation and during the period that the mosquitoes were exposed to the effects of the insecticide. This was the only instance that ill effects were noted in human beings among any of the pyrethrum experiments; it was manifested by irritation of the mucous membranes of the nose and throat and a feeling of slight vertigo and faintness, followed later by mild headache.

TABLE I.—*Experiments with pyrethrum extract in carbon tetrachloride*

Experiment no.	Cubic centimeters of insecticide per 1,000 cubic feet	Time of exposure	Number of *Aëdes*		Percent knocked down at end of exposure	Percent killed in 24 hours
			Female	Total		
		Minutes				
1	4	5	31	52	81	80 0
		10	16	33	97	72 7
2	10	10		31	90	51 6
3	20	5	25	38	100	86 9
		10	27	40	100	90 0
4	40	5	34	58	100	94 8
		15	43	60	100	93 3
5	60	5	34	45	100	100 0
		10	49	61	100	100 0

[2] In some instances, as shown in the tables, both cages in a given experiment were exposed the same length of time.

MIXTURES OF PYRETHRUM IN CARBON TETRACHLORIDE AND IN KEROSENE

The next step was to test various mixtures of pyrethrum in carbon tetrachloride and pyrethrum in a kerosene base. A few tests quite unexpectedly developed the fact that mixtures of these two materials in quite varying proportions were practically as effective as pyrethrum of the same strength in a kerosene base. The mixtures used were made up from carbon tetrachloride containing approximately 2 percent of pyrethrins and refined kerosene containing approximately 2 percent of pyrethrins.

In table 2 the outstanding result appears that even when the kerosene portion of the mixture is as little as one-fifth, the lethal effect on *Aëdes aegypti* is the same as when much larger proportions of kerosene base are used. Thus, in experiment 10, a mixture of 4 parts of the carbon-tetrachloride extract and 1 part of the kerosene-base extract killed 100 percent of *Aëdes aegypti* in 5 minutes when sprayed in amounts of 5 cc per 1,000 cubic feet.

TABLE 2.—*Experiments with pyrethrum extract in mixtures of carbon tetrachloride and kerosene*

Experiment no.	Cubic centimeters of insecticide per 1,000 cubic feet		Time of exposure	Number of *Aëdes*		Percent knocked down at end of exposure	Percent killed in 24 hours
	CCl_4 base	Kerosene base		Female	Total		
			Minutes				
6	5.0	5.0	5	41	56	100	100
			10	34	56	100	100
7	5.0	4.0	5	51	65	100	100
			10	44	65	100	100
8	19.0	1.0	5	37	50	100	100
			10	41	50	100	100
9	9.0	1.0	5	25	54	100	100
			10	18	53	100	100
10	4.0	1.0	5	18	50	100	100
			10	13	47	100	100
11	4.0	1.0	5	22	50	100	100
			10	19	50	100	100
12	4.5	.5	5	23	50	100	100
			10	28	50	100	100
13	4.5	.5	5	31	50	100	100
			10	21	50	100	98
14	4.5	.5	5	17	50	100	100
			10	22	50	100	100
15	4.5	.5	5	27	50	100	92
			10	24	50	100	100
16	4.5	.5	5	29	50	100	100
			5	26	50	100	100
17	4.5	.5	5	24	49	100	100
			5	29	49	100	94
18	4.0	1.0	5	22	50	100	100
			5	18	50	100	100
19	4.0	1.0	5	18	50	100	100
			5	27	50	100	100
20	4.0	1.0	5	23	50	100	100
			5	29	50	100	100
21	4.0	1.0	5	16	50	100	100
			5	21	50	100	100
22	4.0	1.0	5	22	40	100	100
			5	17	44	100	100

The varying mixtures when used in amounts of 5 or 10 cc per 1,000 cubic feet did not cause noticeable irritation or other symptoms to observers remaining in the room up to periods of 15 minutes.

All of the various mixtures used were not subjected to inflammability tests; however, tests were made of the mixture of 1 part kerosene-base extract to 4 parts carbon-tetrachloride base extract. This mixture was found by ordinary tests to be nonflammable. Further extensive studies of it from this viewpoint are under way. It would appear that the possibility of a flammable residue of oil remaining on exposed surfaces of fabrics and the like after evaporation of the carbon tetrachloride need hardly be considered, for the reason that the absolute amounts to be sprayed are quite small—not over 10 cc per 1,000 cubic feet (this is twice the apparent lethal dose).

These mixtures have a higher specific gravity than oil extracts and, in consequence, are not as readily sprayed, requiring in air sprayers a slightly higher pressure.

PYRETHRUM IN KEROSENE MIXED WITH CARBON TETRACHLORIDE

A mixture of 1 part pyrethrum extract in kerosene (containing 2 percent pyrethrins) and 4 parts carbon tetrachloride (containing no pyrethrins) has been made up and at the present writing has been tested in one experiment in which 5 cc per 1,000 cubic feet, with 5 minutes' exposure, killed 100 percent of exposed *Aëdes aegypti* (50 males, 24 females). In view of the fact that the pyrethrum content of the mixture was not over 0.4 percent, this result was unexpected and surprising. By ordinary tests this mixture is nonflammable.[3]

AGE INCIDENCE OF SPECIFIC CAUSES OF ILLNESS [1]

Based on Records for 9,000 Families in 18 States Visited Periodically for 12 Months, 1928–31

By Selwyn D. Collins, *Senior Statistician, United States Public Health Service*

Preceding reports (7, 8) have considered the age incidence of cases and deaths in broad groups of causes corresponding roughly to organ systems, such as respiratory and digestive diseases. Each of these broad disease groups includes a great variety of disorders, ranging in

[3] Since this report was written, three additional tests have been made with this mixture, in all of which 100 percent of the mosquitoes were killed by five minutes' exposure Furthermore, we have found that a kerosene extract containing 0 4 percent of pyrethrins is about as effective against *Aëdes aegypti* as is one containing 2 percent of pyrethrins —C L W.

[1] From the Office of Statistical Investigations, U. S Public Health Service.

This is the sixth of a series of papers on sickness and medical care in this group of families (4, 5, 6, 7, 8). The survey of these families was organized and conducted by the Committee on the Costs of Medical Care; the tabulation was done under a cooperative arrangement between the Committee and the Public Health Service Committee publications based on the results deal primarily with costs, and Public Health Service publications primarily with the incidence of illness and the extent and kind of medical care, without regard to cost. As costs are meaningless without some knowledge of the extent and nature of the service received, there is inevitably some overlapping. The Committee staff, particularly Dr. I. S. Falk and Miss Margaret Klem, cooperated in the tabulation of the data.

Special thanks are due to Dr. Mary Gover, who assisted in the analysis, to Miss Lily Vanzee, who was in immediate charge of tabulating the data, to Drs. Amanda L. Stoughton and R. R. Jones, for advice and assistance in classifying the causes of sickness and death, and to other members of the statistical staff of the Public Health Service for advice and assistance in the preparation of the study.

the respiratory group from coryza to pneumonia and tuberculosis, in the digestive class from indigestion to appendicitis and gall-stones, and in the circulatory group from cervical adenitis to organic heart disease. The diagnosis groups used were based on the International List of Causes of Death; but any broad disease classification that might have been devised would have contained many such inconsistencies.

While the broad groups of diseases have some degree of homogeneity, the age incidence of the specific affections have more interest and more meaning in epidemiology. The present paper considers the age incidence of these more or less specific diseases. Because many of them, such as coryza, indigestion, poison ivy, and scabies, do not appear as causes of mortality, no attempt is here made to compare the incidence of cases and deaths. In a subsequent paper the case incidence of those causes that are important in both sickness and mortality, such as pneumonia and appendicitis, will be considered in relation to deaths.

SOURCE OF THE DATA

The data included in the present paper are the results of periodic canvasses of 8,758 white families living in 130 localities in 18 States and including 39,185 individuals. Each family was visited at intervals of 2 to 4 months for a period long enough to obtain a sickness record for 1 year. On the first call a record was made of the number of members of the household, together with data about sex, age, marital status, and communicable disease history of each person. On succeeding visits the canvasser recorded all illness that had occurred since the preceding call, with such pertinent facts about each case as the date of onset, the duration of disability and of confinement to bed, the nature of such medical service as was obtained, and the termination of the illness. Thus there are available certain facts about the observed population and the illnesses suffered in the course of 12 months.[2]

DEFINITION OF AN ILLNESS AND THE CLASSIFICATION OF ITS CAUSES

Illness as here used refers to both injury and disease. What was actually included as cases, however, was necessarily influenced not only by the informant's (usually the housewife's) conception of illness, but also by her memory. With visits as infrequent as at intervals of 2 to 4 months, it is inevitable that many of the nondisabling illnesses would be terminated and forgotten before the next visit of the enumerator. However, if the record includes most of the real illnesses and excludes only the minor disorders, it may be as useful as a more complete one.

[2] Further details on the method of collecting the data and the characteristics and geographic distribution of the surveyed population are included in the first report in the series (4).

Illnesses that originated prior to the study and caused sickness during the year are included with those having their onset within the period of observation; 93 percent had their onset within and 7 percent prior to the year. The inclusion of these illnesses of prior onset is necessary to give proper representation to chronic ailments. A large proportion of the cases of such diseases as tuberculosis, cancer, diabetes, and cardio-renal affections originated prior to the study. A preceding paper shows for each diagnosis the number of cases with prior onset (4).

Considering an illness in the sense of a continuous period of sickness, one finds only 4.3 percent designated as due to more than one cause. In general, the more important or more serious cause was used as primary, except where a disease like pneumonia is commonly recognized as following measles or influenza, in which cases the antecedent condition was taken as primary.[3] In the present paper on the incidence of specific diseases, such as tonsillitis, appendicitis, and whooping cough, all cases with the given diagnosis are counted whether it was the sole, primary, or contributory cause of the illness. In earlier papers on illness for all causes and for broad disease groups the rates were based on sole or primary causes only, so that a continuous period of sickness would not be counted as two illnesses.

INCIDENCE OF SPECIFIC CAUSES OF ILLNESS AT ALL AGES

Figure 1 shows for all ages the annual case rates per 1,000 for the specific affections that make up the several broad disease groups. The rates have been adjusted to the age distribution of the white population of the registration States, 1929–30.[4]

The rates range from 100 per 1,000 for coryza and colds to less than 1 per 1,000 for the infrequent ailments. Not only do respiratory disorders as a whole stand out as the most frequent cause of illness, but the common subgroups, such as coryza and colds, influenza and grippe, and bronchitis, all remain at the head of the list of specific diseases. Tonsillitis, sore throat, and other diseases of the pharynx make another rather homogeneous group that is larger than any specific nonrespiratory category. If all of the many trivial colds had been recorded, as in a few special respiratory studies (9, 11, 14), the rates for such affections would have been about 10 times those recorded in these studies. The cases here included are probably those of more than average severity.

Of the communicable or infectious diseases, whooping cough and measles lead in incidence. Rheumatism is the predominant affection,

[3] Further details on the method of classifying the causes of illness are included in the first report in the series (4)

[4] Rates for a similar list of diagnoses were given in the first paper (4) without adjustment to a standard age distribution and they therefore differ from the adjusted rates in fig 1 and tables 1 and 2. See preceding paper (7) for the distribution of the white population in the registration States to which the rates are adjusted.

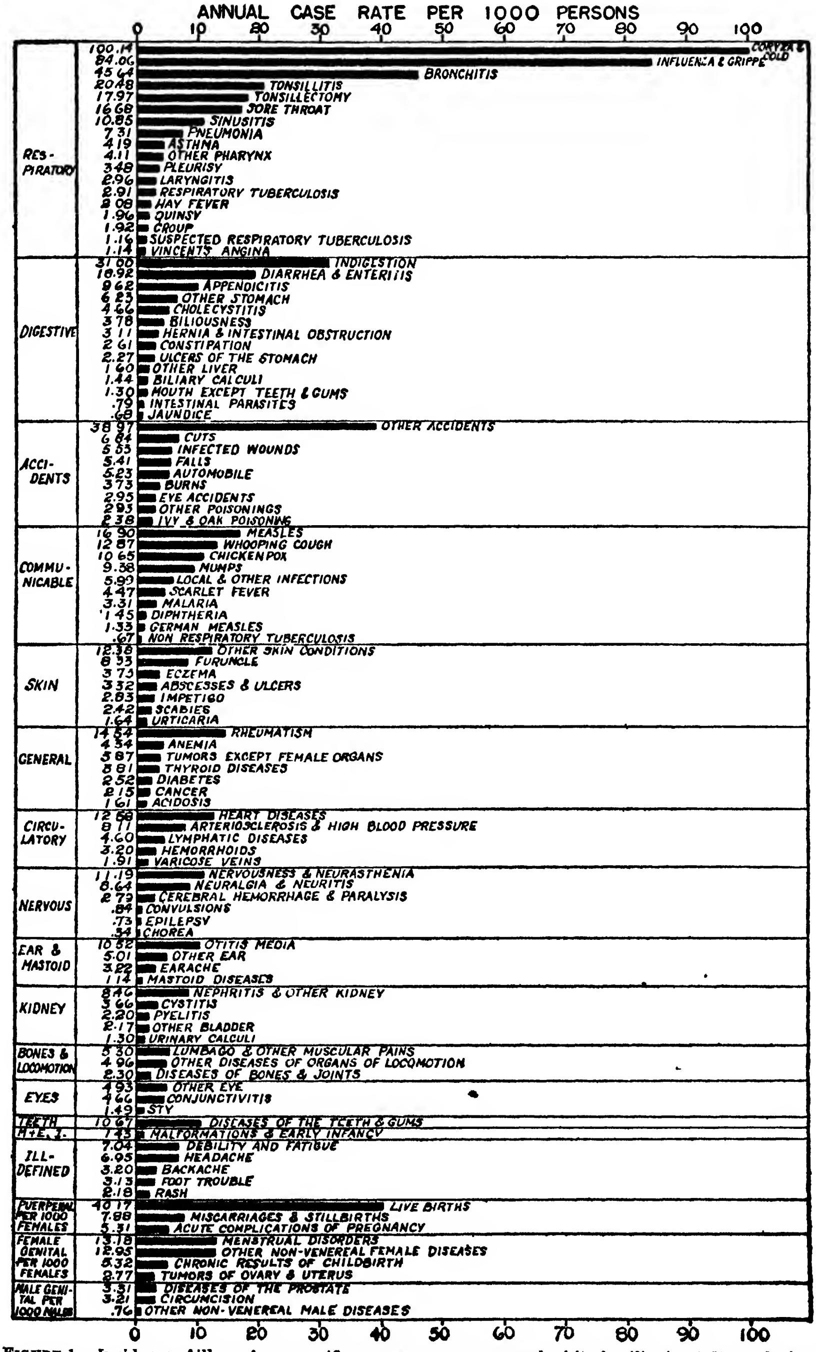

FIGURE 1.—Incidence of illness from specific causes among canvassed white families in 18 States during 12 consecutive months, 1928–31. (Rates adjusted to the age distribution of the white population of the registration States, 1929–30.)

in frequency of cases, among those general ailments that are not included in the epidemic group. In the digestive class, indigestion, and diarrhea and enteritis are the most frequent, but appendicitis comes third in the list. Discussion of the frequency of other diseases seems unnecessary, since the whole list is included in figure 1 and can be seen in that chart.

AGE INCIDENCE OF SPECIFIC DISEASES

In representing graphically the age incidence of the various diseases it is impracticable to plot them on the same rate scale. In the series of age curves, a separate page is devoted to each of the broad diagnosis groups. The specific affections are plotted in different sections, diseases having about the same mean rate for all ages being put in the same section of the chart. The scales are so made that the adjusted rate for all ages for the various diseases represents an interval on the vertical rate scale that corresponds to about 20 years on the horizontal age scale. This relationship is necessarily approximate, since no two diseases have exactly the same rate. However, the curves for the various disorders approach what they would be if plotted on a relative basis as the ratio of the rate in each age to the rate for all ages. In this way the relative variability with age is roughly comparable from one section of the chart to another and at the same time the vertical scales are expressed in actual rates, so that a given point on a curve can be read as so much per 1,000 population of that specific age.

Incidence rates for all diseases except those of the female genital organs and puerperal conditions are included in table 1, in 5-year age groups to 25 years and in 10-year groups to 65 and over. In a number of instances where the cases are few, there are large fluctuations in the rates that are apparently due to chance; in the charts, some combinations into broader age groups are made where such chance fluctuations are particularly large, but in the majority of the diseases the charts represent the rates as they appear in the tables.

TABLE 1.—*Age incidence of specific diseases—Canvassed white families in 18 States during 12 consecutive months, 1928–31 (sole, primary, and contributory causes)*

Diagnoses, with International List numbers, 1920 revision	Number of cases	All ages[1] Crude	All ages[1] Adjusted[2]	Age: Under 5	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65 and over
		Annual case rates per 1,000 population											
Respiratory diseases (11, 31, 97, 107, 109)													
Influenza and grippe (11)	3,320	86.1	84.06	106.7	90.6	71.4	57.1	74.1	92.0	92.9	87.1	72.6	82.2
Bronchitis and chest colds (99)	1,883	48.9	45.64	106.7	56.2	30.4	30.2	29.7	37.1	32.9	39.7	50.9	64.1
Coryza and colds, unqualified (part of 97, part of 107)	4,134	107.3	100.14	189.4	122.5	92.6	72.1	71.7	87.4	88.9	87.1	108.6	96.2
Vincent's angina (part of 109)	40	1.0	1.14	.7	.9	.4	2.0	3.8	1.1	.7	.3		1.0
Tonsillitis (part of 109)	897	23.3	20.48	36.5	37.8	22.3	20.7	17.0	21.6	18.0	9.5	8.8	5.0
Quinsy (part of 109)	70	1.8	1.96	.5	.9	.2	2.3	2.8	5.0	2.2	1.2	2.0	
Sore throat (part of 109)	656	17.0	16.68	17.6	21.0	21.0	19.0	13.7	13.5	14.7	12.5	21.1	17.0
Tonsillectomy and adenoidectomy (part of 109)	841	21.8	17.97	27.0	54.4	31.1	15.1	14.6	13.1	10.0	6.0	2.0	3.0
Other pharynx and tonsil affections (part of 109)	173	4.5	4.11	6.5	4.2	6.6	2.9	2.8	5.1	3.5	4.2	2.0	1.0
Laryngitis (part of 98)	109	2.8	2.46	1.8	2.6	1.3	2.9	1.9	4.3	2.9	5.1	3.4	2.0
Croup (part of 98)	112	2.9	1.92	13.8	.1	1.1			.2	.2			
Pneumonia, all forms (100, 101)	316	8.2	7.31	23.6	10.9	4.8	5.3	3.3	2.7	3.4	4.5	6.8	17.0
Sinusitis (part of 97)	395	10.3	10.85	1.6	4.4	[illegible]	12.1	10.4	16.5	18.2	10.4	13.6	5.0
Asthma (105)	150	3.9	4.19	3.3	4.5	3.1	.7	1.9	4.1	3.7	6.0	7.5	10.0
Hay fever (part of 107)	76	2.0	2.08	[illegible]	1.1	1.7	1.6	.5	3.5	3.7	2.1	3.4	1.0
Pleurisy (102)	114	3.0	3.48	.4	1.9	1.5	1.6	9.4	3.7	3.5	4.5	4.1	5.0
Respiratory tuberculosis (part of 31)	105	2.7	2.91	.7	2.5	2.9	2.9	3.8	4.1	3.0	2.7	2.7	3.0
Suspected respiratory tuberculosis (part of 31)	47	1.2	1.16	.2	1.9	2.6	.7	2.4	1.9	.5	.6		
Other respiratory diseases	274	7.1	6.60	11.3	10.0	4.4	7.2	3.3	5.5	6.8	5.1	5.4	8.0
Epidemic, endemic, and infectious diseases (1–42, exc. 11, 31)													
Tuberculosis, nonrespiratory (32–37)	30	.8	.67	1.3	.9	1.1	.7	.9	.5	1.0			
Malaria (5)	129	3.3	3.[illegible]	2.0	3.3	4.2	3.9	4.7	3.4	4.4	3.0	1.4	1.0
Measles (7)	940	24.4	16.[illegible]	74.4	69.6	19.1	6.9	.5	2.8	.8	.3	.7	
German measles (part of 25)	61	1.6	1.33	2.2	3.0	3.3	3.3	.5	.5	.2	.6		
Whooping cough (9)	739	19.2	12.87	79.8	43.4	7.0	1.6	1.4	.9	.8			1.0
Mumps (13)	466	12.1	9.38	14.7	33.8	22.3	9.5	2.4	4.4	3.4	1.5	1.4	
Chicken pox (part of 25)	596	15.5	10.65	40.6	[illegible]	12.0	2.0		1.9	[illegible]			
Scarlet fever (8)	232	6.0	4.47	9.8	18.2	11.2	2.6	.5	1.4	.5	.9		
Diphtheria (10)	70	1.8	1.45	3.[illegible]	4.9	2.0	1.6	1.9	.3	.3	.3		
Local and other infections (41)	233	6.1	.99	3.8	6.7	8.3	7.2	5.2	6.0	5.6	6.9	6.8	2.0
Other diseases of this group	230	6.0	5.[illegible]0	6.3	10.0	8.1	2.0	4.3	5.3	4.2	5.4	3.4	6.0

[1] "All ages" includes a few of unknown age.

[2] Rates for all ages are adjusted to the age distribution of the white population of the registration States; this population (years of life 1929–30) is given for specific ages in table 1 of a preceding paper (7).

Table 1—*Age incidence of specific diseases—Canvassed white families in 18 States during 12 consecutive months, 1928–31 (sole, primary, and contributory causes)*—Continued

Diagnoses, with International List numbers 1920 revision	Number of cases	All ages: Crude	All ages: Adjusted	Age: Under 5	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65 and over
		Annual case rates per 1,000 population											
Other general diseases (43–69)													
Cancer (43–49)	52	1.3	2.18						.3	1.7	3.9	5.4	18.0
Benign tumors, exclusive of female organs (50)	127	3.3	3.58	.7	.7	1.7	3.6	1.4	3.9	6.2	5.7	6.8	9.0
Rheumatism, acute and chronic (51, 52)	439	11.4	14.54	.9	4.4	2.4	3.6	2.4	11.0	18.5	26.3	46.8	47.1
Diabetes (57)	72	1.9	[illegible]		1.1	.4	1.6		1.2	2.4	4.5	8.8	10.0
Anemia, all forms (58)	146	3.8	4.34	.7	1.9	2.4	4.9	4.7	6.4	3.4	6.3	6.1	7.0
Diseases of the thyroid gland (60)	134	3.5	3.81	.4	1.2	2.6	4.6	5.2	6.2	3.9	7.2	2.7	1.0
Acidosis (part of 69)	70	1.8	1.61	4.5	2.1	.9	.7	2.4	1.6	1.3	.9	1.4	
Other general diseases	101	2.6	2.[illegible]1	4.0	.9	1.7	1.3	2.8	1.1	4.2	3.9	6.8	1.0
Diseases of nervous system (70–84)													
Cerebral hemorrhage and paralysis (74, 75)	65	1.7	2.79	.2	.2		.3		.9	1.0	4.5	4.7	28.1
Epilepsy (78)	26	.7	.[illegible]3	.4	.3	.7	2.9	.5	.2	.8	.3	.7	1.0
Convulsions (79, 80)	48	1.3	.84	7.1	.5	.9	.3		.2				
Chorea (81)	16	.4	.34		1.1	1.7	.7						
Neuralgia and neuritis (82)	269	7.0	8.64		.3	1.1	.3	1.4	11.3	11.8	18.8	25.8	18.0
Nervousness, neurasthenia, nervous breakdown (part of 84)	367	9.5	11.19	.9	2.8	1.5	3.9	11.8	17.9	15.7	18.2	19.0	17.0
Other nervous diseases	99	2.6	2.69	2.2	2.3	2.6	2.9	.9	1.4	2.5	3.3	6.8	4.0
Diseases of eyes and annexa (85)													
Sty (part of 85)	64	1.7	1.49	2.9	1.9	1.3	2.0	.9	1.8	1.2	.9	.7	1.0
Conjunctivitis, pinkeye, sore eye (part of 85)	208	5.4	4.66	8.9	11.2	4.6	4.3	.9	4.6	2.7	1.8	4.1	4.0
Other eye diseases	1[illegible]6	4.6	4.93	3.1	4.0	2.9	2.6	2.4	3.7	4.9	9.3	9.5	10.0
Diseases of ears and mastoid process (86)													
*Earache (part of 86)	154	4.0	3.22	9.4	[illegible]	4.8	2.6	1.4	1.4	1.2	2.1	2.0	
Otitis media (part of 86)	518	13.4	10.52	40.5	22.2	11.2	4.9	5.2	6.0	4.9	6.6	3.4	1.0
Other ear diseases (part of 86)	183	4.7	5.01	4.9	3.7	4.4	5.3	3.3	3.9	5.7	2.7	10.9	9.0
Diseases of mastoid process (part of 86)	52	1.3	1.14	2.7	2.8	.4	1.6	.9	1.1	.7	.3	.7	
Diseases of circulatory system (87–96)													
Diseases of heart (87–90)	336	8.7	12.58	1.1	2.8	4.4	7.2	6.1	5.1	8.9	15.2	31.2	80.2
Hemorrhoids (part of 93)	111	2.9	3.20	.2	.2		1.0	2.4	3.5	8.4	6.6	3.4	3.0
Varicose veins or ulcer (part of 93)	51	1.3	1.91					.5	1.6	2.4	2.1	6.8	10.0
Diseases of lymphatic system (94)	232	6.0	4.60	16.1	13.1	[illegible]	1.6	3.8	2.5	2.0	.9	.7	
Arteriosclerosis and high blood pressure (part of 91, part of 96)	185	4.8	8.11						1.6	4.1	13.1	28.5	66.1
Other circulatory diseases	113	2.9	3.50	1.1	1.4	1.5	2.6	1.9	2.7	4.9	4.2	8.8	9.0
Diseases of teeth and gums (part of 108)	448	11.6	10.67	24.7	7.2	6.6	6.9	12.7	13.5	12.0	9.9	6.8	

Diseases of digestive system (part of 108 110–127)													
Diseases of mouth except teeth and gums (part of 108)	61	1 6	1 30	4 9	2 1	9	3	9	1 1	5	1 5	7	
Ulcers of stomach and duodenum (111)	6	2 0	2 27					1 4	3 0	4 9	4 8	3 4	4.0
Indigestion upset stomach nausea (part of 112)	1 226	31 8	31 00	57 0	29 4	20 8	18 0	19 3	23 2	31 4	36 7	36 0	51 1
Biliousness (part of 205)	145	3 8	3 8	2 4	4 9	6 1	2 6	2 8	3 0	3 5	3 3	6 1	4.0
Other and ill-defined stomach diseases (part of 112)	238	6 2	6 23	13 6	4 5	1 3	3 6	1 9	6 7	5 2	4 5	14.9	10 0
Diarrhea and enteritis (113 114)	829	21 5	18 92	70 4	17 9	8 1	8 2	11 3	11 9	13 5	15 2	17 7	27 1
Intestinal parasites except hookworm (116)	43	1 1	79	4 7	1 7	7	3	5		3			
Appendicitis (117)	352	9 1	9 62	1 5	6 3	10 5	18 4	17 0	15 6	9 6	3 3	5 4	3 0
Hernia intestinal obstruction (118)	106	2 7	3 11	3 5	1 4	1 1	1 3	1 9	2 8	2.0	6 0	6 1	8.0
Constipation (part of 119)	92	2 4	2 61	4 2	5	1 1	7	2 8	2 5	2 7	2 7	7 5	3 0
Biliary calculi (123)	42	1 1	1 44					1 4	2 5	1 9	1 2	2 7	6 0
Cholecystitis (part of 124)	143	3 7	4 66				7	2 4	4.4	7 8	11 3	8 8	13 0
Jaundice (part of 124)	31	8	68	1 1	1 7	9	1 0	5	9	2	3		
Other and ill-defined liver diseases (part of 124)	48	1 3	1 60	2	5		3	1 9	1 4	1 3	4.2	3 4	4.0
Other and ill-defined diseases of the digestive system	110	2 9	3 04	1 4	1 6	2 0	1 6	4 3	2 8	5 1	3 0	5 4	3 0
Diseases of kidneys and urinary system (128–134)													
Pyelitis (part of 131)	93	2 4	2 20	3 8	3 1	9	7	1 9	2 5	2 7	2 4	2 0	1 0
Nephritis and other kidney diseases (128 129 part of 131)	264	6 9	8 46	3 5	3 7	3 5	2 3	5 2	7 3	8 8	11 3	16 3	35 1
Calculi of urinary passages (132)	45	1 2	1 30				3	5	2 5	2 9	2 1	1 4	2 0
Cystitis (part of 133)	113	2 9	3 66	1 3	1 1		7	9	3 0	6 1	3 3	8 8	17 0
Other diseases of bladder, diseases of urethra (part of 133 134)	80	2 1	2 17	2 9	3 1	4		5	1 2	2 0	3 6	4 1	6 0
Diseases of skin and cellular tissue (151 154)													
Furuncle (152)	319	8 3	8 33	4 3	6 8	7 9	16 4	5	10 3	10 1	6 9	5 4	3 0
Abscesses and ulcers (153 part of 154)	127	3 3	3 32	3 1	2 6	3 9	3 6	1 9	3 5	3 2	3 9	3 4	4 0
Impetigo (part of 154)	144	3 7	2 83	1	9 8	6 3	5 3	5		7	6		
Urticaria hives (part of 154)	69	1 8	1 64	2 9	2 1	1 7	1 3	1 4	1 8	1 0	1 8	2 0	
Scabies (part of 154)	111	2 9	2 42	2 9	6 5	6 8	5 3	9	2	8	3	7	1 0
Eczema (part of 154)	160	4 1	3 73	12 1	1	2 6	3 3	3 8	3 2	2 9	4 2	1 4	2 0
Other and ill-defined skin diseases	465	12 1	12 38	11 4	12 3	15 8	15 1	13 7	9 9	8 6	12 2	10 9	20 0
Diseases of bones and organs of locomotion (155–158)													
Diseases of bones and joints except tuberculosis and rheumatism (155, 156)	92	2 1	2 30		1 4	2 6	2 0	2 8	3 0	2 4	1 8	2 7	4 0
Lumbago and other muscular pains (158)	167	4 3	5 30		3	7	1 1	9	5 3	8 8	11 3	17 0	8 0
Other diseases of organs of locomotion	183	4 7	4 96	4 2	2 5	6 3	3 5	2 8	3 5	5 4	9 3	9 5	3 0
Congenital malformations and other diseases of early infancy (159–163)	84	2 2	1 43	12 5	1 7	9	3						
Accidents and other external causes (165–203)													
Poisoning by ivy oak and other plants (part of 177)	96	2 5	2 48	7	4 4	4 4	2 6	1 4	2 3	2 2	1 5	2 0	2 0
Other accidental poisonings (175 176 part of 177)	119	3 1	2 93	4 9	3 7	2 0	1 3	2 8	2 5	4 1	1 8	4 1	2 0
Automobile accidents (188c)	191	5 0	5 23	3 1	4 9	2 4	6 2	7 1	5 5	6 2	4 8	5 4	7 0
Accidental burns (179)	155	4 0	5 3	6 5	4	4 2	2 9	2 8	3 7	3 2	3 6	1 4	4 0
Accidental injuries by cutting or piercing instruments (184	293	7 6	6 84	7 4	13 3	12 5	5	6 1	4 4	6 1	4 2	4 7	1 0
Accidental falls (185)	197	5 1	5 41	9 3	4	3 7	3 3	3 8	3 7	3 7	3 6	7 5	19 0
Eye accidents (part of 88 part of 202)	118	3 1	2 95	2 7	3 3	1 3	3 2	2 4	5 3	3 7	2 1	7	2 0
Infected wounds (part of 202)	212	5 5	5 53	3 1	4 4	7 2	5	4 7	6	5 9	6 6	2 7	4 0
Other accidental injuries	1 506	39 1	38 97	33 2	42 5	48 2	46 6	33 0	31 4	39 3	38 2	37 3	46 1

TABLE 1.—*Age incidence of specific diseases—Canvassed white families in 18 States during 12 consecutive months, 1928–31 (sole, primary, and contributory causes)*—Continued

Diagnoses, with International List numbers, 1920 revision	Number of cases	All ages: Crude	All ages: Adjusted	Age: Under 5	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65 and over
		Annual case rates per 1,000 population											
Other and ill-defined causes (164, 204, 205):													
Foot trouble (part of 205)	104	2.7	3.13	----	0.2	1.3	1.6	3.8	2.3	5.4	3.9	5.4	10.0
Headache (part of 205)	243	6.3	6.95	0.2	2.3	4.6	.7	7.1	12.1	10.3	11.6	10.2	5.0
Backache (part of 205)	106	2.7	3.20	----	.2	.2	.7	3.8	4.4	7.3	4.5	4.1	5.0
Debility, fatigue, exhaustion, malnutrition, loss of weight (part of 205)	255	6.6	7.04	4.9	5.3	4.2	4.9	4.7	10.5	7.1	8.1	9.5	11.0
Rash, unqualified (part of 205)	106	2.7	2.18	8.9	3.1	2.2	2.3	.9	.9	1.3	1.5	----	1.0
Other and unknown causes of sickness	450	11.7	13.38	9.3	7.0	8.3	8.9	8.0	12.9	12.8	16.1	18.3	46.1
Population, both sexes (years of life)		38,544 [1]		5,513	5,715	4,568	3,050	2,119	5,640	5,930	3,351	1,473	998
		Annual case rates per 1,000 males											
Nonvenereal diseases of male genital organs and annexa (135–142):													
Diseases of prostate (135)	31	1.6	3.31	----	----	----	----	----	0.8	0.7	1.6	7.5	41.2
Circumcision (part of 136)	95	5.0	3.21	27.8	3.9	1.7	----	----	.4	----	.5	----	----
Other nonvenereal diseases of male genital organs (part of 136)	20	1.1	.76	5.0	.3	.4	1.3	----	----	.3	.5	----	----
Population, males (years of life)		18,896 [1]		2,808	2,820	2,301	1,527	894	2,402	2,979	1,845	804	437

[1] "All ages" includes a few of unknown age.

The diseases of the female genital organs and puerperal conditions are shown separately in table 2 in 5-year age groups to 55 years. The communicable diseases and a few other affections that are largely confined to childhood are shown in single years of age up to 15 in table 3, but are also included in the general table in the broader age groups.

TABLE 2.—*Age incidence of puerperal conditions and diseases of the female genital organs—canvassed white families in 18 States during 12 consecutive months, 1928–31 (sole, primary, and contributory causes)*

Diagnoses, with International List numbers, 1920 revision	All ages [1]			Age									
	Number of cases	Crude	Adjusted [2]	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65 and over
		Annual case rates per 1,000 females											
Puerperal state (143–150):													
Abortions, miscarriages, and stillbirths (part of 143)	149	7.6	7.88	1.3	26.1	20.9	22.8	17.5	10.5	1.1		-	---
Live births (part of 145, 149)	761	38.8	40.17	17.1	125.7	150.0	116.5	67.3	27.4	5.7		.	---
Acute complications of pregnancy and childbirth	101	5.1	5.31	1.3	16.3	17.5	17.1	9.9	4.0	1.1	--	-	--
Nonvenereal diseases of female genital organs (137–142): [3]													
Chronic results of childbirth	102	5.2	5.32	1.3	7.3	12.1	18.3	11.1	7.3	3.4	4.8	4.5	1.8
Cysts and tumors of ovary and uterus (137, 139)	46	2.3	2.77	--	3.3	3.4	3.4	6.4	5.6	3.4	8.0	4.5	3.6
Menstrual disorders and uterine hemorrhage (140, part of 141)	231	11.8	13.18	23.6	21.2	21.5	14.3	21.1	16.[illegible]	30.7	23.[illegible]	3.0	1.8
Other and ill-defined nonvenereal diseases of female organs (part of 141, 142)	252	12.8	12.95	3.9	15.5	32.9	34.3	31.0	22.6	13.7	8.0	3.0	3.6
Population, females (years of life)	[1] 19,627			1,523	1,225	1,487	1,751	1,710	1,241	879	627	669	561

[1] "All ages" includes a few of unknown age.
[2] Rates for all ages are adjusted to the age distribution of the white population of the registration States. This population (years of life, 1929–30) is given for specific ages in table 1 of a preceding paper (7).
[3] Rates for the age groups under 15 are as follows:

	Under 5	5–9	10–14
Menstrual disorders			4.0
Other and ill-defined nonvenereal diseases of female genital organs	2.2	1.7	1.8

Respiratory.—Figure 2 shows the various respiratory diseases. The influenza and grippe curve is the usual one that has been characteristic of those diseases in the several minor epidemics since 1918, as found by special surveys and in the Hagerstown study (2, 12). As indicated by respiratory studies, both coryza and bronchitis have age curves that are somewhat different from cases reported as influenza or grippe (9). Tonsillitis, tonsillectomy, and other diseases of the pharynx show high rates among children, particularly in the school ages, with a tendency to decline as age increases. Pneumonia exhibits the characteristic curve, with high rates among the young and old, like the pneumonia of nonepidemic years and of recent respiratory epidemics, but unlike that of the 1918 epidemic, which

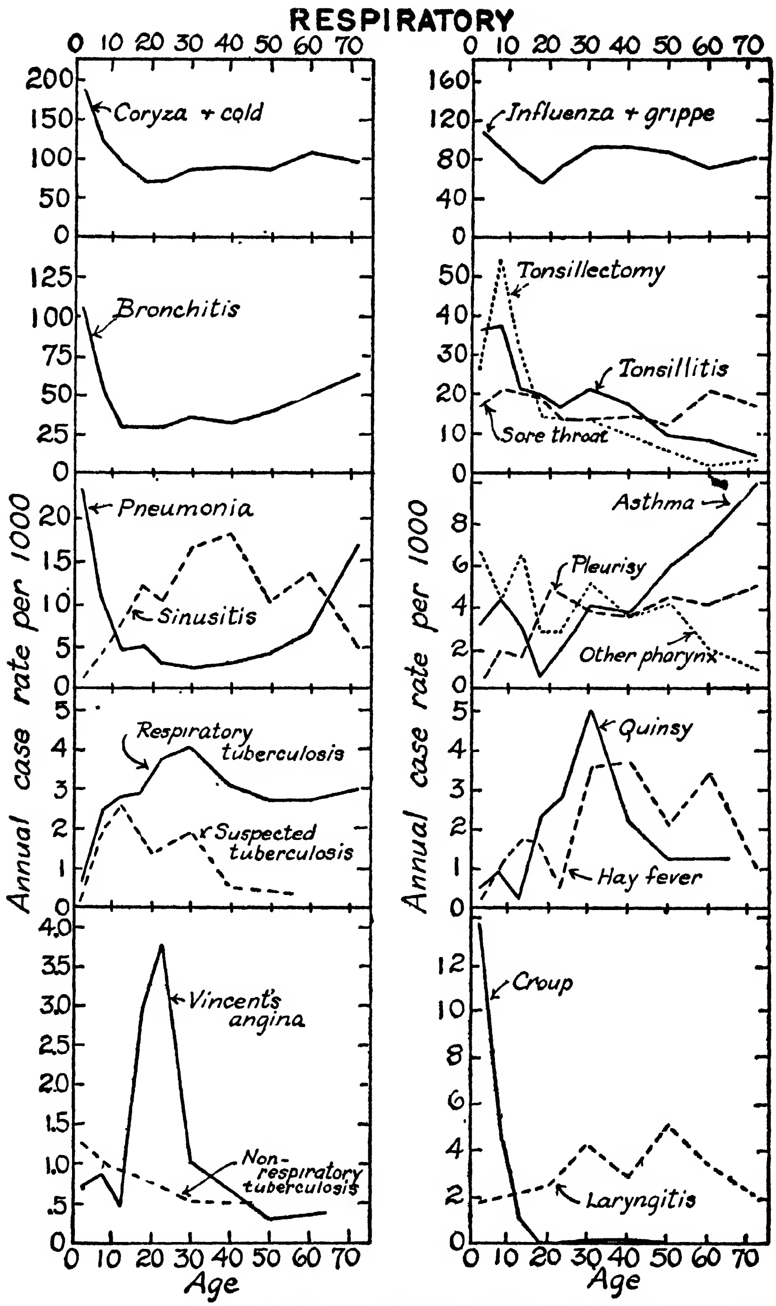

FIGURE 2.—Age incidence of various respiratory diseases—canvassed white families in 18 States during 12 consecutive months, 1928–31. (Scales are so made that the adjusted rate for all ages represents an interval on the vertical rate scale that corresponds roughly to 20 years on the horizontal age scale. In a few instances the rates as plotted represent broader age groups than those shown in the tables.)

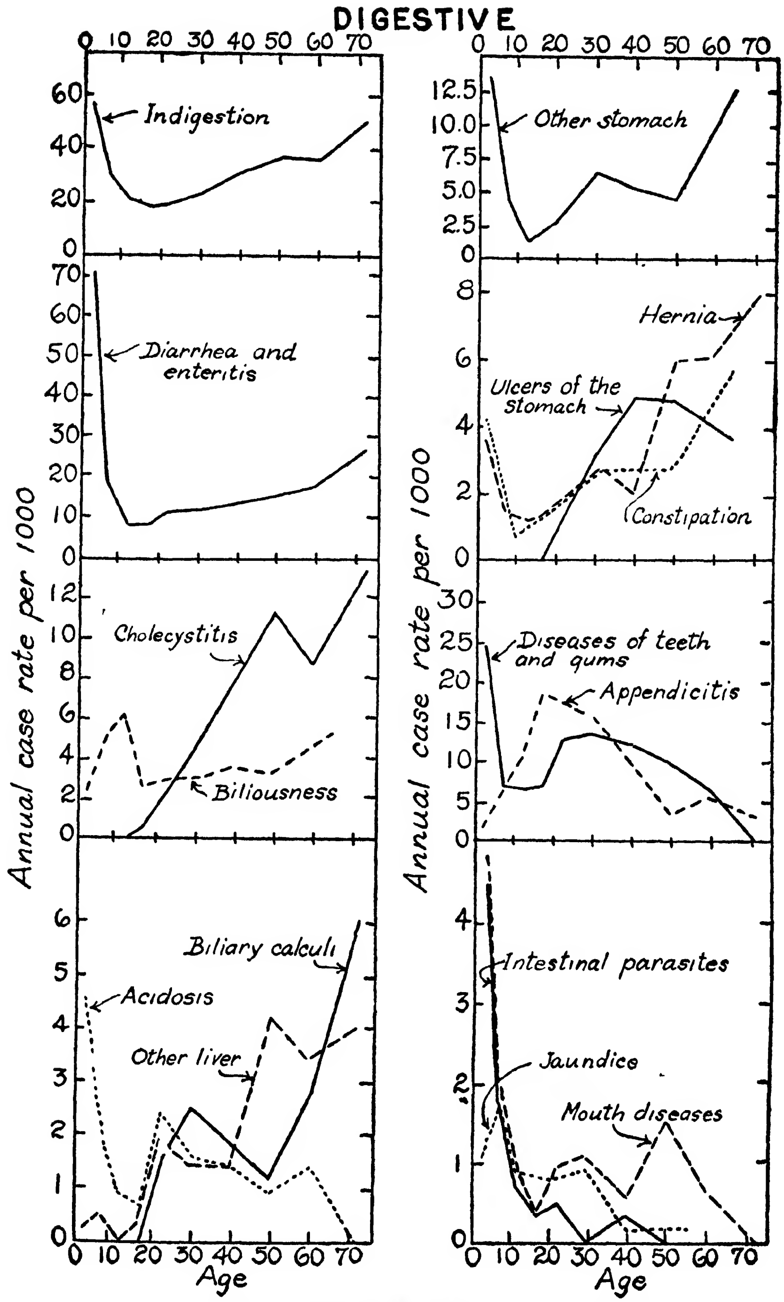

FIGURE 3.—Age incidence of various digestive diseases. (See fig. 2 for source of data and details about scales and plotting.)

was high among young adults (2, 12). The only other respiratory disease that shows any marked rise in the older ages is asthma. Unlike asthma, hay fever is higher in the middle adult than in the older ages. Both asthma and hay fever have secondary childhood peaks between 5 and 15 years, which are followed by lower rates before the high adult incidence begins.

Several of the respiratory diseases exhibit age curves that are high among young adults, with low rates both preceding and following these peaks, viz, sinusitis with a maximum at 40 years, quinsy with a maximum at 30 years, and Vincent's angina with a maximum from 15 to 25 years. Pleurisy is low among children, with a rather rapid rise to 20 or 25 years and a gradual rise thereafter. Laryngitis, as found in a preceding study (1), is relatively low in childhood when tonsillitis is high, and gradually increases to a maximum at about 50 years, when the tonsillitis rate is low. Croup (nondiphtheretic) is seldom reported above 10 years.

Respiratory tuberculosis has a maximum at 30 years, but the rate continues relatively high to the end of the life span. Suspected tuberculosis, which in some instances apparently refers only to a type of child that is particularly susceptible to tuberculosis, has an earlier peak, 10 to 14 years. The peak for nonrespiratory tuberculosis is under 5 years, with a gradual decline as age increases.

Digestive.—Figure 3 shows the diseases of the digestive system, including the teeth and gums. Several of these diseases have especially high rates among children under 5 years, viz, diarrhea and enteritis, indigestion and other stomach ailments, acidosis, diseases of the mouth, diseases of the teeth and gums (presumably "teething"), and intestinal parasites. Indigestion and other stomach ailments and diarrhea and enteritis reach their minima at 10 to 20 years, with a gradual rise to old age. After teething difficulties of young children, there is a period from 5 to 19 years when the teeth are not reported as the cause of much illness, but nevertheless are subject to much decay, as evidenced by the results of dental examinations (3). After 20 years of age the frequency of illness associated with the teeth again rises, but it declines gradually from 30 years to the end of the life span. The incidence of jaundice is highest in childhood. Cholecystitis, biliary calculi, and other diseases of the liver are practically absent in childhood and tend to increase to their maxima in the oldest ages; the secondary peak in biliary calculi at 30 years is probably not significant as the number of cases is small. Attacks reported as biliousness, which may refer to liver or to stomach disorders, are more frequent in school than in preschool or adult ages. Hernia and constipation increase with age above 15 years, but both diagnoses have higher rates among young children than among adolescents. Appendicitis is relatively rare in the ages under 5 and above 45 years, the peak being

at 15 to 19. Ulcers of the stomach and duodenum are rare, but the indications are that they are more frequent from 40 to 50 years than before or after those ages. None was reported under 20 years.

Eyes and ears.—Figure 4 shows diseases of the eyes and ears. Conjunctivitis, pink eye, and other inflammatory eye disorders are high among children, with definitely lower rates among adults. Sty is also frequent in the youngest ages, but there is a secondary peak at 30 years. Other miscellaneous eye ailments show a gradual increase up to about 50 years, after which there is not much change; in this respect they are similar to defective vision, as indicated by the Snellen and Jaeger tests (10).

Earache, otitis media, and diseases of the mastoid process are all high in young children, with a marked decline to 20 years and a tend-

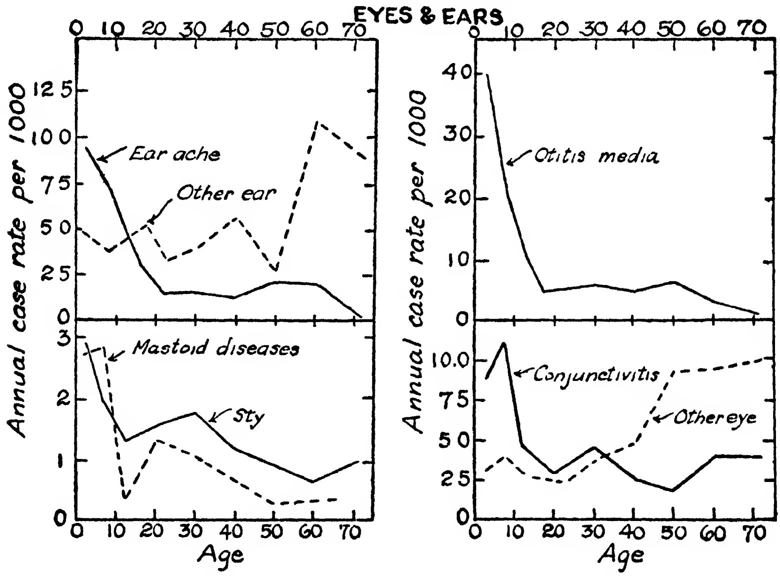

FIGURE 4.—Age incidence of various diseases of the eyes and ears (See fig 2 for source of data and details about scales and plotting)

ency toward a gradual decline thereafter. Miscellaneous other ear conditions increase rather markedly with age after about 50 years.

Skin.- Figure 5 shows the diseases of the skin. Nearly all of these affections are high at the early ages; eczema, urticaria, and rash without other qualification are highest among children under 5 years. Impetigo and scabies are lower in the preschool than in the school ages; impetigo declines markedly after 10 years, but scabies is relatively high from 5 to 20, with a drop to a low level thereafter. Boils and carbuncles definitely increase to about 20 years, after which the rate declines to the end of the life span.

Accidents.—The various kinds of accidents (fig. 6) have rather different age curves. Injuries due to falls show the greatest variation with age, being high among young children and old people. Burns are more frequent under 5 than at any other age. Ivy, oak, and other plant poisonings are high from 5 to 15 years, with a drop to a relatively low level that is maintained to the end of the life span. Other poisonings are highest under 5 years, declining until the adolescent ages, after which there is considerable increase. Eye accidents have a definite peak at 30 years of age, presumably due to industrial hazards. Injuries by cutting and piercing instruments are high among children, particularly from 5 to 15 years, with declining rates as age increases. Automobile accidents are lower among children than adults, but there is a small peak at 5 to 9 years which probably represents the age when

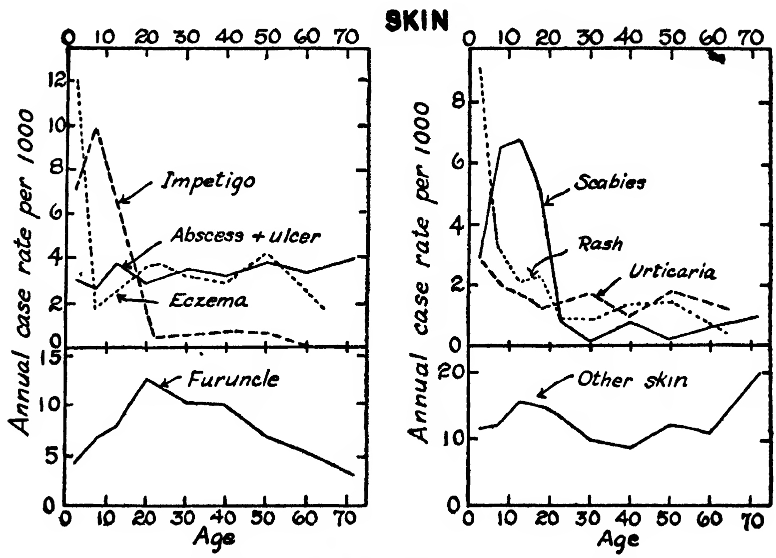

FIGURE 5.—Age incidence of various skin diseases. (See fig. 2 for source of data and details about scales and plotting.)

children are playing on the streets and are too young to keep out of the path of automobiles. After 15 there is little variation with age in the frequency of injury from automobile accidents. Infected wounds are slightly more frequent in adolescence than at other ages. Local and other infections, in which there was included no report of a scratch or injury, have an age curve that is similar to infected wounds, suggesting that many of these cases are really infected wounds. Miscellaneous and ill-defined accidents, which constitute the great majority of the injuries, show slightly higher rates from 5 to 20 and above 65 years than at other ages.

Female diseases and the puerperal state.—Figure 7 shows the age incidence of diseases of the female genital organs and puerperal condi-

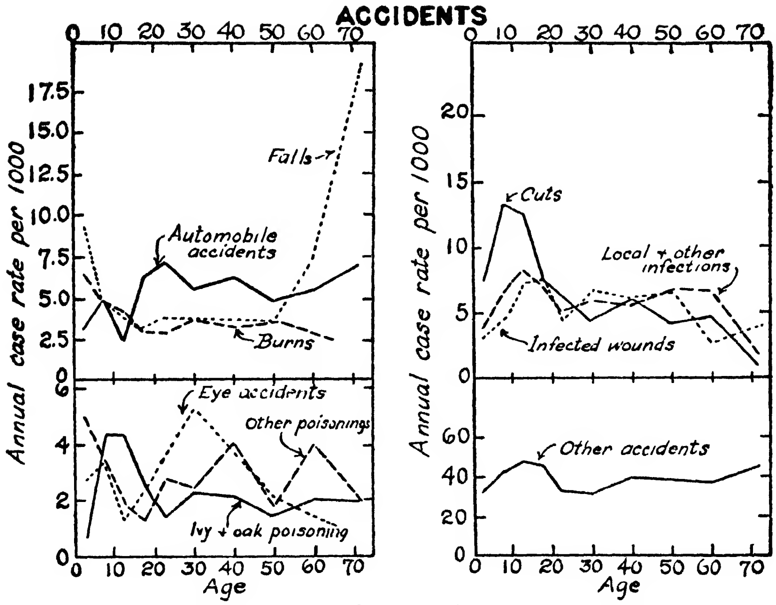

FIGURE 6.—Age incidence of injury from various kinds of accidents (See fig 2 for source of data and details about scales and plotting.)

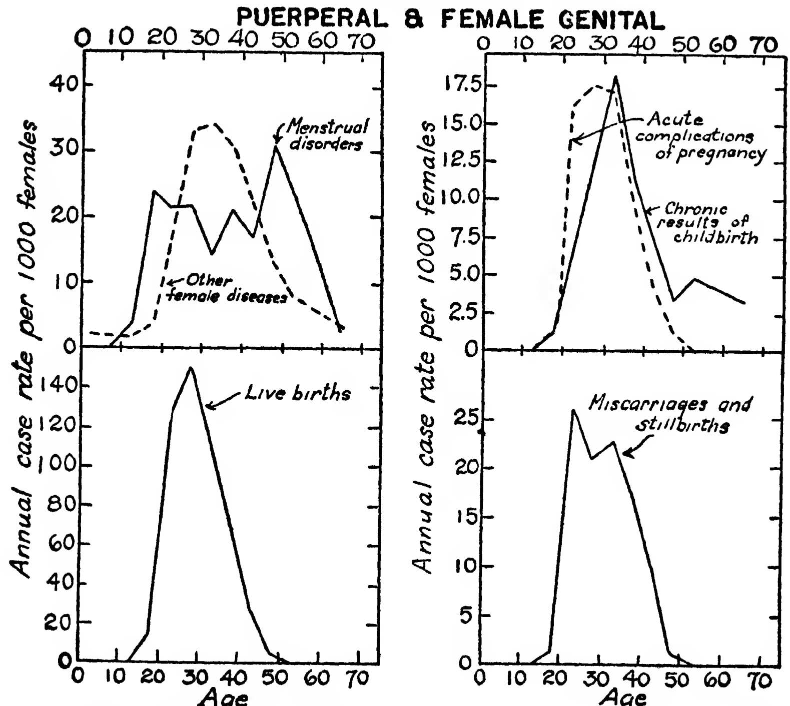

FIGURE 7.—Age incidence of puerperal conditions and diseases of the female genital organs. (See fig. 2 for source of data and details about scales and plotting.)

tions. The latter group refer by definition to the childbearing ages; but, except for menstrual disorders, the diseases of the female organs are also confined largely to those ages. The complications and sequelae of childbearing have been divided into the acute ailments accom-

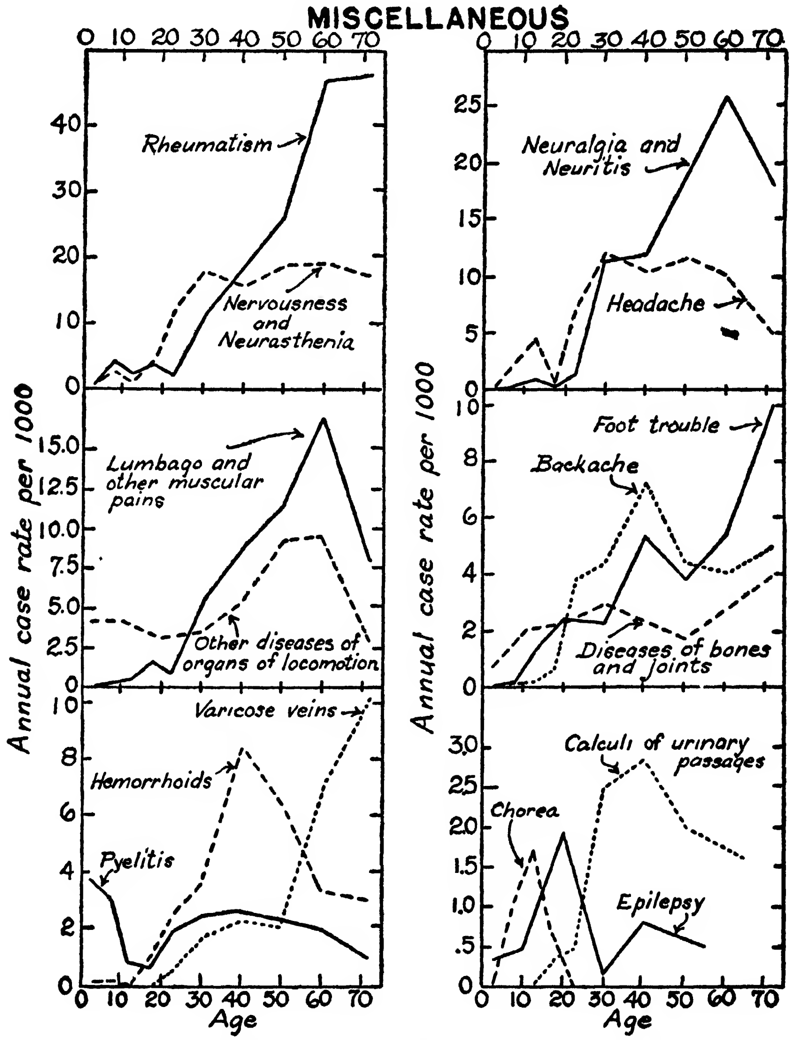

FIGURE 8.—Age incidence of various specific diseases in a miscellaneous group. (See fig. 2 for source of data and details about scales and plotting.)

panying pregnancy and birth during the study, and chronic affections such as lacerations and displacements resulting from prior births. In the latter category there are some old cases in ages considerably beyond the childbearing period. Miscarriages and stillbirths have their peak slightly earlier than live births. Both of these categories might be

more properly related to married women, but in this paper they are related to all females in the same way as the various female diseases. In menstrual disorders, shown as a single category, the first peak comes at 15 to 19 years, with a decline thereafter; but there is a second and

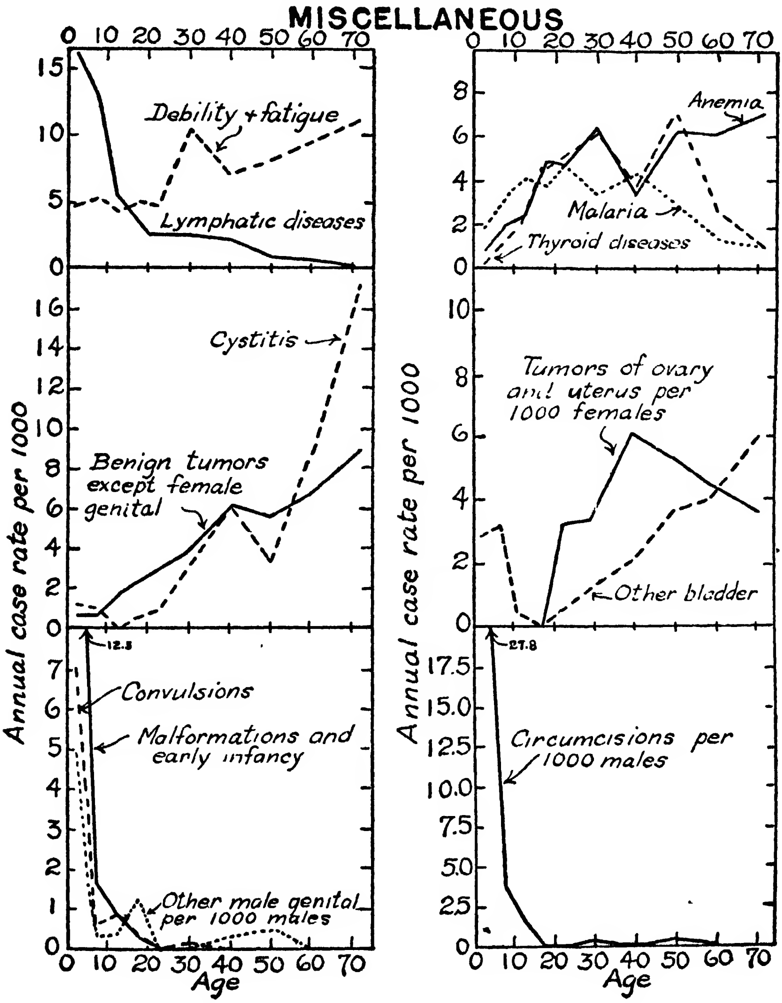

FIGURE 9.—Age incidence of various specific diseases in a miscellaneous group. (See fig. 2 for source of data and details about scales and plotting.)

higher peak at 45 to 49 representing the menopause. Tumors of the ovaries and uterus are plotted in figure 9 with other tumors.

Miscellaneous.—Figures 8 and 9 show the age incidence of miscellaneous diseases classified in the International List of Causes of Death as nervous, circulatory, kidney and bladder, male genital, malformations and early infancy, organs of locomotion, and general

nonepidemic diseases, except those maladies in these categories that are commonly designated as the diseases of old age. Figure 8 shows rheumatism, neuralgia and neuritis, lumbago and other muscular pains, backache, and a class of miscellaneous diseases of the organs of locomotion which consists largely of affections of the muscles and related tissues. The incidence of all of these aches, pains, and inflammations of the muscles and nerves rises with age, but the oldest group, 65 years and over, has a lower rate than preceding ages in several categories, and in rheumatism the rate is only slightly above the preceding age. The curves for nervousness and neurasthenia, headache, anemia, and diseases of the thyroid gland are all similar. With the exception of headache, which has a secondary peak at 10 to 14 years, these ailments are rare in childhood; the rates increase gradually to about 30 years and remain approximately the same to the end of the life span, except thyroid diseases, which are definitely lower above 55, and headache, which is reported less frequently above 65 years.

Pyelitis is high among children under 10 and reaches a second maximum at 40 years, but the variation with age is not marked. Calculi of the urinary passages is seldom reported under 20 and reaches a maximum at 40 years, followed by a decline to the end of the life span. Cystitis and other bladder disorders increase with age, but the rate is also high among children for affections other than cystitis. Benign tumors increase with age; the curve for tumors of the female genital organs increases with age to about 40 years, with a decline thereafter. The diseases of the lymphatic system, largely of the cervical glands, are high among children under 10, with a rapid decline to 20 years and a gradual decline thereafter to the end of the life span. No cases of chorea were reported outside of the ages 5 to 15 years. Epilepsy has a peak at 20, with fewer illnesses from this cause before and after that age. Malaria is relatively low under 5, rising to a maximum at 20 to 40 years, with a general decline thereafter. More illness from hemorrhoids was reported at ages 35 to 44 than before or after that age period; physical examinations of adults indicate a continuous rise with age (13), but the decline after 40 years in the curve of the cases that caused illness is quite definite. The rate for varicose veins rises continuously with age, in agreement with results of physical examinations.

At the bottom of figure 9 are several diagnoses from which illness is seldom reported except among children, viz, congenital malformations and diseases of early infancy, convulsions, circumcision, and other nonvenereal disorders of the male genital organs except prostate diseases. In all these affections the rates are very low except under 5, and a large part of the cases occur under 1 year of age. Table 3 shows the rates for these disorders in single years for children under 5.

Degenerative.—The ailments of old age, sometimes designated as the degenerative diseases, are plotted in figure 10. They are so definitely

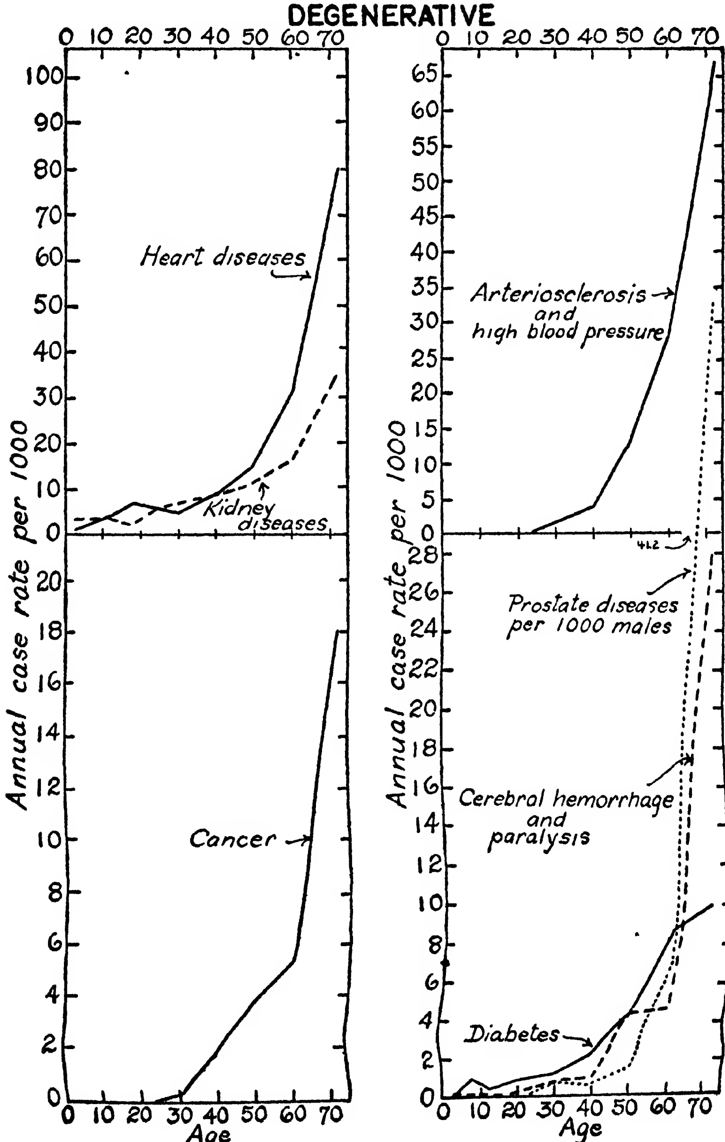

FIGURE 10.—Age incidence of various degenerative diseases (See fig. 2 for source of data Scales are so made that the adjusted rate for all ages represents an interval on the vertical rate scale that corresponds roughly to 15 years on the horizontal age scale)

associated with old age that it is impracticable to maintain the same scale as used in the previous graphs. In this chart the adjusted rate

for all ages is made equal to approximately 15 years on the horizontal age scale. Every one of these ailments rises sharply with age. Heart diseases show a small secondary peak at 15 to 19 years, which presumably represents rheumatic and other acute affections of the heart that occur in childhood. The rise with age in kidney disorders is not so sharp as in heart diseases; however, if kidney affections are limited to those definitely diagnosed as nephritis, the increase with age is greater. The rise with age in diabetes is approximately the same as

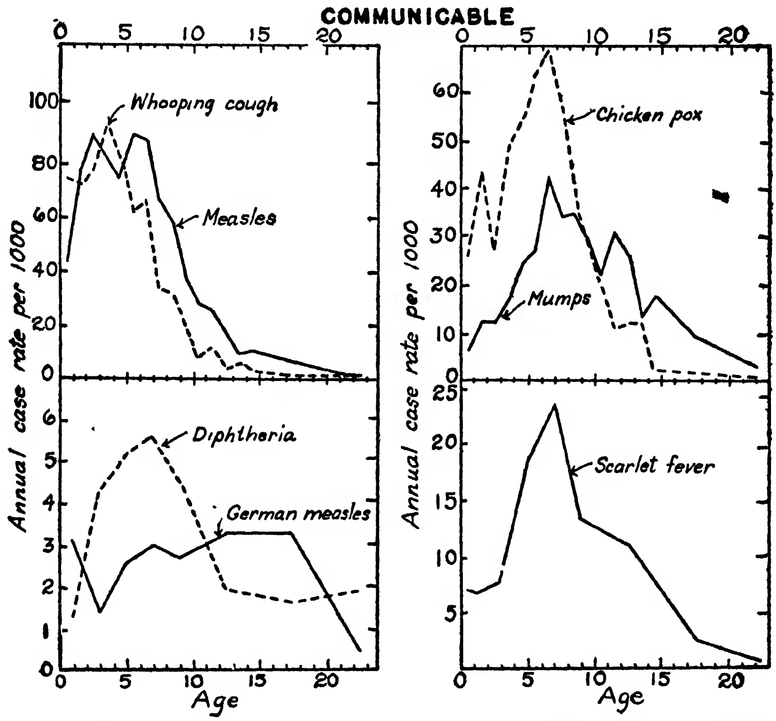

FIGURE 11—Age incidence of various communicable diseases of childhood. (See fig 2 for source of data Scales are so made that the rate for all ages under 15 years represents an interval on the vertical rate scale that corresponds roughly to 10 years on the horizontal age scale In some instances the rates as plotted represent broader age groups than those shown in the tables)

in kidney diseases. Cancer, arteriosclerosis, and prostatic affections are highly concentrated in the older ages.

Communicable diseases.—The communicable diseases of children (fig. 11) are so largely confined to the younger ages that they have been plotted in single years, except scarlet fever, diphtheria, and German measles, in which the cases are too few to subdivide to that extent. Table 3 shows the rates in single years below 15 for the various diseases in this group.

TABLE 3.—*Age incidence of the communicable and other diseases of childhood—canvassed white families in 18 States during 12 consecutive months, 1928–31 (sole, primary, and contributory causes)*

Age	Measles	Whooping cough	Mumps	Chicken pox	Scarlet fever	Diphtheria	German measles	Diarrhea and enteritis	Congenital malformations and diseases of early infancy [1]	Convulsions	Circumcision [1]	Other nonvenereal diseases of male genital organs	Population (years of life): Both sexes	Population (years of life): Male
	Annual case rate per 1,000 population										Annual case rate per 1,000 males			
All ages under 15:														
Crude	56.7	45.6	23.8	36.3	13.2	3.5	2.8	33.4	5.3	2.9	11.7	2.0	15,796	7,929
Adjusted [2]	54.14	42.67	23.91	34.86	13.18	3.46	2.82	31.16	4.86	2.71	10.71	1.84		
Under 1	43.4	74.7	6.1	26.3	7.1		3.1	116.2	56.6	5.1	118.5	14.6	990	481
1	76.9	70.6	12.7	43.6	6.3	2.4		108.6	2.4	15.1	12.3	1.5	1,261	652
2	92.0	77.6	12.4	27.8	6.7	4.8	1.4	47.9	4.8	5.7	5.4	3.6	1,044	558
3	82.1	94.2	16.8	48.5	8.4	3.7		37.3	2.8	6.5	7.5	3.7	1,072	535
4	75.0	82.9	24.4	54.1	20.1	6.1	2.6	40.1	1.7	1.7	10.3	3.4	1,146	582
5	91.3	63.1	27.3	64.0	15.4	4.3		23.0					1,172	558
6	88.9	65.6	42.3	69.1	20.7	6.0	3.0	11.2					1,158	569
7	66.6	34.2	34.2	57.2	27.3	5.1		18.8	1.7	.5	3.9	.3	1,171	615
8	58.8	31.5	34.8	38.9	14.1	5.8	2.7	20.7					1,207	565
9	38.7	19.9	29.8	25.8	12.9	3.0		14.9					1,007	513
10	27.9	8.4	22.3	20.4	10.2	4.6		9.3					1,077	542
11	25.5	12.2	31.0	11.1	12.2	1.1		7.8					903	461
12	18.6	4.4	26.2	12.0	15.3	2.2	3.3	5.5	.9	.9	1.7	.4	915	467
13	9.6	6.0	13.3	12.1	12.1			6.0					829	401
14	10.7	3.5	17.8	2.4	5.9	1.2		11.8					844	430
	Total number of cases under 15 years													
Number	895	720	376	574	209	56	44	527	83	46	93	16		

[1] Case rates per 1,000 under 1 month are as follows:

	Monthly basis	Annual basis	Number of cases
Congenital malformations and diseases of early infancy	49.2	590	40
Circumcision per 1,000 males	103.6	1,243	40

[2] Rates for all ages under 15 years are adjusted (using 5-year age groups only) to the age distribution of the white population of the registration States. This population (years of life, 1929–30) is given for specific ages in table 1 of a preceding paper (7).

The peak occurs earlier in whooping cough than in any of the other diseases, the maximum incidence being at 3 years, with a small secondary peak at 6, which may be the effect of additional exposure in school. Measles shows a double peak, the first at 2 and the second at 5 and 6 years of age; the latter peak is presumably associated with school entrance. Measles case rates at 2, 5, and 6 years are approximately the same. Chicken pox, mumps, and scarlet fever all remain relatively low in the preschool period, with peaks at 6 to 7 years of age. Diphtheria reaches a peak at about the same age as scarlet fever. The number of cases of German measles is small but the peak incidence appears to come at a definitely later age, the rates at 10 to 14 and 15 to 19 being the highest and approximately the same. Since the rates for the communicable diseases are very low beyond 25 years, the charts show only the ages under 25. Rates for adult ages are included with other diseases in table 1.

SUMMARY

Records of illness were obtained on 8,758 white families in 130 localities in 18 States for a period of 12 consecutive months between February 1928 and June 1931. Each family was visited at intervals of 2 to 4 months to obtain the data.

The surveyed families include representation from nearly all geographic sections, from rural, urban, and metropolitan areas, from all income classes, and consist of both native- and foreign-born persons. The proportions of these various elements included are not identical with those in the population of the United States, but the variations are not generally large. In other respects also the surveyed group is not dissimilar to families in the general white population of the United States.

This paper presents in graphs and tables the age incidence of all of the specific diseases that were reported in sufficient numbers to approximate a reasonably accurate age curve. While there are irregular chance variations in many of the curves, they serve to indicate the general picture of the age incidence of even the less frequent diagnoses.

It is impossible to summarize in a few words the data on so many diseases, but the charts afford a summary view of the results.

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COURT DECISION ON PUBLIC HEALTH

City ordinance, providing that barber shops should be closed during certain hours, held void.—(California Supreme Court; *Ganley* v. *Claeys et al.*, 40 P. (2d) 817; decided Jan. 21, 1935.) An ordinance of the city of Martinez provided that all barber shops should be closed from 6:30 p. m. of each day until 8 o'clock of the following morning, except on Saturdays and days preceding specified holidays, on which days they should close at 8 p. m. and remain closed on Sundays and the specified holidays. The lower court declared the ordinance void. On appeal, the supreme court, in the following language, pointed out that the protection of the public health was the purpose assigned for the adoption of the ordinance:

* * * It is said, and a witness testified, that the inspectors are only on duty from 9 a. m. until 5 p. m., and that 90 percent of the complaints from the public concern violations occurring late in the evening or on Sundays or holidays; hence the ordinance is a health measure. * * *

The appellate court pointed out that the State had acted to completely regulate barbering and took the view that the ordinance did not have a reasonable relation to the protection of the public health. The court's opinion closed with the following:

* * * in the barbering business the regulation is accomplished by limiting the practitioners to those who understand and will comply with sanitary methods adopted and approved by the State. It is apparent that, if the latter course is successfully pursued, the barbering business is completely and thoroughly regulated. It is equally obvious that, if the respondent in this case is not one who understands and who will not conform to the sanitary methods adopted, compelling him to close his shop an hour earlier is not going to accomplish that purpose. in view of these facts, we are of the opinion that the rule adopted in the Laramie case [*State* v. *City of Laramie*, 40 Wyo. 74, 275 P. 106] is the proper one, and that the ordinance has not a reasonable relation to the purpose assigned for its adoption.

Judgment affirmed.

DEATHS DURING WEEK ENDED SEPT. 21, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 21, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,404	6,899
Deaths per 1,000 population, annual basis	10.3	9.6
Deaths under 1 year of age	508	572
Deaths under 1 year of age per 1,000 estimated live births	47	53
Deaths per 1,000 population, annual basis, first 38 weeks of year	11.5	11.5
Data from industrial insurance companies:		
Policies in force	67,580,404	67,200,682
Number of death claims	10,872	11,238
Death claims per 1,000 policies in force, annual rate	8.4	8.7
Death claims per 1,000 policies, first 38 weeks of year, annual rate	9.8	10.0

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Sept. 28, 1935, and Sept. 29, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 28, 1935, and Sept. 29, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept 29, 1934	Week ended Sept. 28, 1935	Week ended Sept 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934
New England States:								
Maine	8						0	0
New Hampshire						11	0	0
Vermont		1			8		0	0
Massachusetts	6	10			12	5	1	2
Rhode Island	1	1			2	4	1	0
Connecticut	3		8	1	9	17	0	1
Middle Atlantic States:								
New York	27	30	[1] 15	[1] 3	62	60	8	3
New Jersey	15	20	7	12	57	18	2	2
Pennsylvania	39	49			28	105	7	5
East North Central States:								
Ohio	40	61	19	32	16	28	2	5
Indiana	68	34	22	15	4	22	1	1
Illinois	60	42	9	4	14	54	4	2
Michigan	31	10	5		20	44	2	1
Wisconsin		2	28	16	38	47	1	1
West North Central States:								
Minnesota	2	9			7	24	0	1
Iowa [2]	19	9			1	4	1	1
Missouri	52	45	28	41	18	51	1	4
North Dakota	2	2			4	6	0	2
South Dakota		2				13	0	0
Nebraska	8	6	1		6	1	0	0
Kansas	16	0			5	8	0	0
South Atlantic States:								
Delaware			1		6		0	0
Maryland [3] [4]	14	7	8	35	7	11	1	0
District of Columbia	17	10	1		1	2	3	0
Virginia	38	57			4	14	2	1
West Virginia	45	55	26	11	6	21	1	3
North Carolina [4]	66	104	5		9	12	0	0
South Carolina [4]	24	13	176	142	1	3	0	0
Georgia [4]	35	60					0	1
Florida [4]	9	12			3	1	0	0
East South Central States:								
Kentucky	50	66	2		44	9	4	1
Tennessee	47	60	39	7	18	3	2	1
Alabama [4]	44	51	9	6	8	25	2	0
Mississippi [3]	31	30					0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 28, 1935, and Sept. 29, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Sept 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934
West South Central States:								
Arkansas	13	14	10	9		2	1	0
Louisiana	22	12	5	3	3	3	1	1
Oklahoma [5]	23	12	27	37	1	2	1	1
Texas [4]	72	34	30	45	10	5	0	0
Mountain States:								
Montana	5		6	8	5	4	0	0
Idaho	1			2		1	0	0
Wyoming	1				8	1	0	0
Colorado	10	4			6	5	0	0
New Mexico	4	2	2			2	0	1
Arizona	2		18	10	2	10	0	0
Utah [3]					1		0	0
Nevada								
Pacific States.								
Washington	1	7			13	40	0	0
Oregon			18	26	118	3	1	1
California	20	32	24	22	87	47	2	0
Total	995	984	539	487	672	748	52	43
First 39 weeks of year	22,422	21,418	106,475	51,909	698,966	672,284	4,545	1,804

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 28, 1935	Week ended Sept 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934
New England States:								
Maine	14	1	3	20	0	0	2	5
New Hampshire	4	0	1	1	0	0	0	0
Vermont	7	0	6	7	0	0	0	2
Massachusetts	88	2	59	88	0	0	3	3
Rhode Island	32	0	10	4	0	0	0	2
Connecticut	33	1	13	9	0	0	5	1
Middle Atlantic States:								
New York	150	12	173	113	0	0	26	26
New Jersey	51	4	35	38	0	0	12	6
Pennsylvania	15	4	188	187	0	0	34	67
East North Central States:								
Ohio	7	23	157	294	0	0	35	50
Indiana	1	7	86	62	0	0	14	9
Illinois	14	12	217	245	1	1	33	49
Michigan	30	14	51	92	0	0	20	24
Wisconsin	4	10	145	141	1	1	5	8
West North Central States:								
Minnesota	2	4	83	55	0	4	6	4
Iowa [2]	3	0	41	33	0	0	7	20
Missouri	2	1	59	43	0	0	10	37
North Dakota	0	0	12	11	4	0	1	2
South Dakota	0	2	10	12	1	1	0	1
Nebraska	1	0	21	13	4	0	0	0
Kansas	4	3	27	40	8	1	10	4
South Atlantic States:								
Delaware	0	0	9	1	0	0	2	4
Maryland [3] [4]	13	1	28	36	0	0	17	18
District of Columbia	7	1	14	17	0	0	2	0
Virginia	10	1	34	51	0	0	20	21
West Virginia	0	5	81	79	0	0	25	34
North Carolina [4]	15	0	66	91	0	0	24	25
South Carolina [4]	1	0	10	6	0	0	11	21
Georgia [4]	0	0	23	8	0	0	26	19
Florida [4]	1	0	4	5	0	0	1	12

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Sept. 28, 1935, and Sept. 29, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934	Week ended Sept. 28, 1935	Week ended Sept. 29, 1934
East South Central States:								
Kentucky	19	7	76	49	0	1	62	43
Tennessee	3	3	55	72	0	0	33	28
Alabama [4]	1	1	14	31	0	0	20	22
Mississippi [3]	0	0	20	15	0	0	7	7
West South Central States:								
Arkansas	4	0	18	3	1	0	13	9
Louisiana	1	0	5	9	0	0	27	9
Oklahoma [5]	0	1	8	15	0	0	18	17
Texas [4]	1	7	31	24	1	7	47	41
Mountain States:								
Montana	0	24	31	6	0	0	2	7
Idaho	0	4	27	3	0	0	10	7
Wyoming	0	0	11	8	5	1	0	5
Colorado	1	0	24	40	5	4	4	4
New Mexico	0	3	6	13	0	0	20	19
Arizona	1	2	8	6	0	0	0	1
Utah [3]	0	1	28	4	0	0	3	0
Nevada								
Pacific States:								
Washington	0	25	35	20	2	12	5	7
Oregon	3	10	37	32	0	0	4	6
California	26	45	110	120	0	0	24	9
Total	569	241	2,210	2,272	33	33	650	715
First 39 weeks of year	8,508	5,807	189,034	156,911	5,484	3,888	13,452	15,912

[1] New York City only.
[2] Rocky Mountain spotted fever, week ended Sept. 28, 1935, Iowa, 1 case.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended Sept. 28, 1935, 36 cases, as follows: Maryland, 2; North Carolina, 1; South Carolina, 2; Georgia, 14; Florida, 2; Alabama, 8; Texas, 7.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July 1935										
Colorado	9	39			219		8	139	2	10
New Hampshire		2					1	16	0	8
Puerto Rico		71	18	895	20	2	1		0	124
August 1935										
Mississippi	3	62	565	12,661	36	421	8	32	2	47
Montana		7	16		39		0	9	2	24
Nevada					7		0	10	0	3
New Hampshire							36	7	0	1
New York	54	59		15	911		1,193	372	0	126
Rhode Island	1	5			248		125	14	0	4
South Carolina		188	232	2,410	16	189	9	12	1	117
Virginia	12	97	458	76	61	18	278	77	0	188

Summary of monthly reports from states—Continued

July 1935

	Cases
Chickenpox:	
Colorado	51
Puerto Rico	63
Dysentery:	
Puerto Rico	19
Epidemic encephalitis:	
Colorado	2
Impetigo contagiosa:	
Colorado	1
Leprosy:	
Puerto Rico	1
Mumps:	
Colorado	88
Puerto Rico	40
Ophthalmia neonatorum:	
Puerto Rico	5
Paratyphoid fever:	
Colorado	1
Puerperal septicemia:	
Puerto Rico	8
Tetanus:	
Puerto Rico	16
Tetanus, infantile:	
Puerto Rico	8
Whooping cough:	
Colorado	44
Puerto Rico	212

August 1935

	Cases
Chickenpox:	
Mississippi	136
Montana	27
Nevada	2
New York	203
Rhode Island	21
South Carolina	12
Virginia	10
Dengue:	
Mississippi	13
South Carolina	3
Devil's grippe (Dabney's grippe):	
Virginia	11
Diarrhea:	
South Carolina	523
Dysentery:	
Mississippi (amoebic)	52
Mississippi (bacillary)	577
New York (amoebic)	8
New York (bacillary)	156
Rhode Island (bacillary)	1
Virginia (bacillary, and diarrhea)	837
Epidemic encephalitis:	
Montana	1
New York	11
South Carolina	3
German measles:	
Montana	12
New York	194
Hookworm disease:	
Mississippi	358
South Carolina	96
Mumps:	
Mississippi	217
Montana	11
Rhode Island	31
South Carolina	65
Virginia	78
Ophthalmia neonatorum:	
New York	8
South Carolina	5
Paratyphoid fever:	
New York	18
South Carolina	7
Virginia	7
Puerperal septicemia:	
Mississippi	23
Rabies in animals:	
Mississippi	4
New York [1]	2
South Carolina	33

August 1935—Continued

	Cases
Rocky Mountain spotted fever:	
Montana	2
Virginia	10
Scabies:	
Montana	1
Septic sore throat:	
Montana	7
New York	23
Rhode Island	6
Virginia	4
Tetanus:	
New York	5
Trachoma:	
Virginia	2
Trichinosis:	
New York	7
Virginia	1
Tularaemia:	
Montana	2
Nevada	5
Virginia	8
Typhus fever: [2]	
South Carolina	2
Virginia	2
Undulant fever:	
Mississippi	2
New York	31
Rhode Island	1
Virginia	3
Vincent's infection:	
Montana	2
New York [1]	64
Whooping cough:	
Mississippi	474
Montana	185
Nevada	1
New York	1,541
Rhode Island	48
South Carolina	121
Virginia	155

[1] Exclusive of New York City.
[2] The report of 1 case of typhus fever in Wyoming in July, PUBLIC HEALTH REPORTS of Aug. 30, 1935, p. 1187, was an error, no case of typhus fever having been reported to the State Department of Health during the year.

WEEKLY REPORT FROM CITIES

City reports for week ended Sept. 21, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Maine:											
Portland	0		0	0	0	0	0	0	1	4	29
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	6
Nashua	0			0		0	0		0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	0
Burlington	0		0	0	0	0	0	0	0	0	19
Rutland	0		0	0	0	2	0	0	0	0	7
Massachusetts:											
Boston	0		1	1	13	9	0	5	0	12	191
Fall River	0		0	0	0	2	0	0	0	5	24
Springfield	0		0	0	1	1	0	0	0	2	22
Worcester	0		0	0	1	8	0	1	0	0	56
Rhode Island:											
Pawtucket	0		0	0	0	0	0	0	0	0	16
Providence	0		0	2	3	5	0	1	1	30	45
Connecticut:											
Bridgeport	0		0	0	1	3	0	1	1	0	34
Hartford	0		0	1	1	3	0	1	0	13	38
New Haven	0		1	0	2	3	0	0	0	4	36

City reports for week ended Sept. 21, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New York:											
Buffalo	0	------	0	1	12	19	0	7	9	10	137
New York	23	8	1	10	51	32	0	57	19	121	1,216
Rochester	0	------	0	1	2	1	0	0	0	1	53
Syracuse	0	------	0	2	1	2	0	1	0	17	47
New Jersey:											
Camden	3	------	0	0	0	1	0	1	2	2	16
Newark	0	1	0	1	3	2	0	5	0	23	62
Trenton	0	------	0	0	0	2	0	1	1	0	27
Pennsylvania:											
Philadelphia	4	4	1	4	13	35	0	17	4	74	388
Pittsburgh	0	2	1	0	19	23	0	8	3	17	178
Reading	0	------	0	1	2	1	0	0	0	0	27
Scranton	1	------	------	1	------	2	0	------	0	0	------
Ohio:											
Cincinnati	8	------	0	0	10	7	0	13	2	10	159
Cleveland	3	6	0	1	14	5	0	6	4	54	191
Columbus	5	1	1	0	1	16	0	2	2	1	101
Toledo	1	------	0	2	3	3	0	1	2	9	52
Indiana:											
Anderson	0	------	0	1	0	1	0	0	1	2	10
Fort Wayne	12	------	0	0	2	3	0	0	0	0	22
Indianapolis	3	------	0	5	16	10	0	2	2	22	102
Muncie	0	------	0	0	0	1	0	0	0	0	5
South Bend	1	------	0	1	0	2	0	0	0	0	11
Terre Haute	1	------	0	0	0	0	0	0	0	0	12
Illinois:											
Alton	4	------	0	0	1	2	0	0	0	0	6
Chicago	16	3	4	15	34	53	0	26	4	133	644
Elgin	0	------	0	0	2	3	0	1	0	0	17
Moline	0	------	0	0	0	0	0	0	0	0	5
Springfield	0	------	0	0	5	1	0	0	0	5	------
Michigan:											
Detroit	3	5	0	4	20	12	0	19	2	136	228
Flint	1	------	0	0	0	4	0	0	0	3	27
Grand Rapids	0	------	0	1	0	9	0	2	2	7	49
Wisconsin:											
Kenosha	0	------	0	0	0	5	0	0	0	4	5
Milwaukee	0	1	1	5	3	19	0	4	1	64	100
Racine	0	------	0	0	0	13	0	0	0	7	5
Superior	0	------	0	0	0	0	0	1	0	0	5
Minnesota:											
Duluth	0	------	0	0	1	3	0	1	0	0	20
Minneapolis	5	------	0	2	4	26	0	0	4	5	89
St. Paul	0	------	0	0	7	9	0	3	0	9	54
Iowa:											
Davenport	0	------	------	0	------	1	0	------	0	0	------
Des Moines	0	------	------	0	------	2	0	------	0	0	35
Sioux City	0	------	------	0	------	6	0	1	0	5	------
Waterloo	3	------	------	0	------	2	0	------	0	1	------
Missouri:											
Kansas City	0	------	2	0	6	4	0	4	0	2	85
St. Joseph	5	------	0	0	4	2	0	1	0	0	33
St. Louis	5	------	0	0	8	20	0	0	4	9	194
North Dakota:											
Fargo	0	------	0	0	0	3	0	0	0	3	6
Grand Forks	0	------	------	2	------	0	0	------	0	2	------
Minot	0	------	0	1	0	1	0	0	0	0	9
South Dakota:											
Aberdeen	0	------	0	0	------	0	0	------	0	0	------
Nebraska:											
Omaha	2	------	0	0	4	4	0	1	0	1	51
Kansas:											
Lawrence	0	------	0	1	1	0	0	1	0	0	7
Topeka	0	------	0	0	0	0	0	0	0	7	4
Wichita	0	------	0	1	4	0	0	0	0	0	22
Delaware:											
Wilmington	2	------	0	0	2	0	0	0	0	1	25
Maryland:											
Baltimore	0	2	0	1	7	5	0	16	4	11	176
Cumberland	0	------	0	0	0	0	0	0	1	0	7
Frederick	0	------	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	10	------	0	0	8	12	0	12	1	3	138

City reports for week ended Sept. 21, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Virginia:											
Lynchburg	1	------	0	0	1	0	0	1	2	14	11
Norfolk	0	------	0	0	1	1	0	2	0	1	25
Richmond	0	------	0	0	2	1	0	4	0	0	53
Roanoke	5	----	0	0	0	2	0	0	0	0	9
West Virginia:											
Charleston	9	------	0	0	1	1	0	0	0	0	13
Huntington	3	----	------	0	-	11	0	------	0	0	------
Wheeling	0	----	0	1	4	3	0	1	1	1	21
North Carolina:											
Gastonia	1	-----	0	0	1	1	0	0	1	0	3
Raleigh	0	------	0	0	1	0	0	2	0	0	12
Wilmington	0	------	0	1	0	0	0	0	0	1	9
Winston-Salem	2	------	0	0	2	1	0	0	4	1	9
South Carolina:											
Charleston	0	4	0	0	2	0	0	0	0	0	14
Columbia	0	-	0	0	0	0	0	0	0	0	13
Florence	0	--	0	0	1	0	0	0	0	0	11
Greenville	0	--	0	0	0	2	0	1	0	0	6
Georgia:											
Atlanta	8	3	1	0	3	3	0	2	0	8	71
Brunswick	0	----	0	0	1	0	0	0	0	2	3
Savannah	0	----	0	0	0	0	0	3	0	0	32
Florida:											
Miami	1	1	0	0	0	1	0	2	0	0	24
Tampa	1	----	0	3	1	1	0	0	2	0	21
Kentucky:											
Ashland	5	--	-	0	-	0	0	---	0	2	------
Covington	0	--	0	0	0	2	0	0	0	2	12
Lexington	6	--	0	0	2	0	0	2	0	0	21
Louisville	5	---	0	0	7	8	0	1	1	3	75
Tennessee:											
Knoxville	2	--	0	0	1	1	0	1	2	0	27
Memphis	4	--	0	0	0	9	0	4	2	13	69
Nashville	0	--	0	0	1	4	0	0	1	0	47
Alabama:											
Birmingham	2	1	0	1	1	6	0	6	0	0	62
Mobile	7	--	0	0	0	0	0	1	1	0	16
Montgomery	2	---		0	-	0	0	-----	0	1	------
Arkansas:											
Fort Smith	0	-	--	0		2	0	-	0	1	------
Little Rock	4	----	0	0	2	0	0	2	1	0	------
Louisiana:											
Lake Charles	0		0	0	2	1	0	0	1	0	8
New Orleans	17	---	0	4	7	0	0	18	1	3	147
Shreveport	0	----	0	0	1	0	0	1	1	0	31
Oklahoma:											
Tulsa	3	-		0	0	2	0	0	2	2	-
Texas:											
Dallas	7	-	0	0	2	8	0	1	0	0	55
Fort Worth	1	--	0	1	2	2	0	2	0	3	30
Galveston	0	-	0	0	0	0	0	0	0	0	14
Houston	9		0	0	1	2	0	4	1	0	62
San Antonio	0		1	0	4	0	0	5	0	0	41
Montana:											
Billings	0	-	0	0	2	1	0	0	1	2	6
Great Falls	0	-	0	0	0	0	0	0	0	9	10
Helena	0	------	0	0	1	0	0	0	0	3	4
Missoula	0	-----	0	0	1	7	0	0	0	0	3
Idaho:											
Boise	0	-----	0	0	0	0	0	0	0	0	4
Colorado:											
Colorado Springs	0	------	0	0	0	0	0	3	0	2	10
Denver	5	------	0	1	5	11	0	3	1	2	88
Pueblo	0	------	0	0	3	4	0	0	0	2	11
New Mexico:											
Albuquerque	0	-----	0	0	0	0	0	5	1	4	13
Utah:											
Salt Lake City	0	------	0	0	2	16	0	1	0	11	26
Nevada:											
Reno	0	------	0	1	0	0	0	0	0	0	1

City reports for week ended Sept. 21, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Washington:											
Seattle	0	------	--------	0	2	0	0	2	1	2	80
Spokane	0	------	----	3	------	2	0	3	0	3	34
Tacoma	0	------	0	0	0	3	0	1	0	0	23
Oregon:											
Portland	0	------	0	2	3	9	0	0	0	0	59
Salem	0	1	--------	0	------	4	0	------	0	1	------
California:											
Los Angeles	8	8	2	6	9	21	0	11	6	16	276
Sacramento	4	-----	0	5	1	4	0	2	3	1	24
San Francisco	0	2	0	22	5	20	0	11	0	13	167

State and city	Meningococcus Meningitis		Poliomyelitis cases
	Cases	Deaths	
Maine:			
Portland	0	0	3
Vermont:			
Burlington	0	0	1
Massachusetts:			
Boston	1	0	68
Fall River	0	0	7
Springfield	0	0	3
Worcester	0	0	3
Rhode Island:			
Pawtucket	0	0	3
Providence	0	0	14
Connecticut:			
Bridgeport	0	0	4
Hartford	0	0	3
New Haven	0	0	2
New York:			
New York	17	3	142
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	3	2	7
Ohio:			
Cincinnati	2	2	0
Columbus	1	1	2
Indiana:			
Muncie	0	0	1
Illinois:			
Chicago	1	0	1
Springfield	0	0	1
Michigan:			
Detroit	1	1	12
Flint	0	1	1
Wisconsin:			
Milwaukee	0	0	1
Racine	0	0	1
Minnesota:			
Minneapolis	0	0	2
St. Paul	0	0	1
Missouri:			
St. Louis	1	0	0
Nebraska:			
Omaha	0	0	1
Maryland:			
Baltimore	3	0	5
District of Columbia:			
Washington	2	0	7
Virginia:			
Richmond	0	0	3
Kentucky:			
Lexington	0	0	1
Louisville	1	2	5
Tennessee:			
Memphis	1	0	0
Alabama:			
Birmingham	2	1	0
Louisiana:			
New Orleans	1	0	2
Colorado:			
Colorado Springs	0	0	3
California:			
Los Angeles	0	0	11
Sacramento	0	0	1
San Francisco	0	1	0

Dengue.—Cases: Miami, 1.

Epidemic encephalitis.—Cases: New York, 1; Philadelphia, 1; Kansas City, Mo., 3; St. Joseph, 1. Deaths: Louisville, 2.

Pellagra.—Cases: Savannah, 3; Miami, 1; Memphis, 1; New Orleans, 2, Dallas, 1.

Typhus fever.—Cases: New York, 2; Baltimore, 1; Charleston, S. C., 1; Mobile, 1.

FOREIGN AND INSULAR

CANADA

Vital statistics—First quarter 1935—Comparative.— The Bureau of Statistics of the Dominion of Canada has published the following preliminary statistics for the first quarter of 1935. The rates are computed on an annual basis. There were 19.5 live births per 1,000 population during the first quarter of 1935 and 20.6 per 1,000 population in the same quarter of 1934. The death rate was 10.5 per 1,000 population for the first quarter of 1935 and 10 per 1,000 population for the first quarter of 1934. The infant mortality rate for the first quarter of 1935 was 83 per 1,000 live births and 73 in the same period of 1934. The maternal death rate was 5.8 per 1,000 live births for the first quarter of 1935, and 5.9 for the same quarter of 1934.

The accompanying tables give the numbers of births, deaths, and marriages by Provinces for the first quarter of 1935, and deaths from certain causes in Canada for the first quarter of 1935, and the corresponding quarter of 1934, and by Provinces for the first quarter of 1935:

Number of births, deaths, and marriages, first quarter 1935

Province	Live births	Deaths (exclusive of stillbirths)	Deaths under 1 year of age	Maternal deaths	Marriages
Canada [1]	52,822	28,396	4,407	309	11,695
Prince Edward Island	471	226	33	2	73
Nova Scotia	2,770	1,770	236	21	658
New Brunswick	2,511	1,283	227	11	426
Quebec	18,077	8,741	1,841	111	2,570
Ontario	15,129	9,795	962	94	4,256
Manitoba	3,202	1,512	264	14	833
Saskatchewan	4,813	1,667	381	26	898
Alberta	3,465	1,517	316	13	1,091
British Columbia	2,384	1,885	147	17	890

[1] Exclusive of Yukon and the Northwest Territories

Cause of death	Canada [1] (first quarter)		Province, first quarter, 1935								
	1934	1935	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Automobile accidents	107	172		4	2	33	101	9	2	10	11
Cancer	2,609	2,667	14	156	103	696	996	181	154	147	220
Diarrhea and enteritis	504	446	2	16	5	280	63	22	21	25	12
Diphtheria	71	55	---	1	3	25	6	8	5	4	3
Diseases of arteries	2,038	2,074	11	116	88	452	1,015	96	80	85	131
Diseases of the heart	4,506	4,453	43	214	160	983	2,043	225	197	230	358
Homicide	34	28	---	---		5	11	1	3	6	2
Influenza	804	1,629	5	130	48	653	524	39	78	85	67
Measles	27	172	---	15	10	90	13	22	17	4	1
Nephritis	1,521	1,597	22	90	41	741	459	49	71	45	79
Pneumonia	2,291	2,516	16	169	124	691	817	175	195	194	135
Poliomyelitis	7	13	---	---	---	4	6	1	1	1	---
Puerperal causes	323	309	2	21	11	111	94	14	26	13	17
Scarlet fever	55	91	2	1	3	48	25	1	5	5	1
Smallpox	2	3	---	---	---	2	---	---	1	---	---
Suicide	195	232	1	9	1	33	93	18	24	20	33
Tuberculosis	1,637	1,676	10	135	89	723	307	108	77	70	157
Typhoid fever and paratyphoid fever	63	46	---	4	2	31	3	3		2	1
Other violent deaths	933	1,017	4	59	40	220	391	60	63	61	119

[1] Exclusive of Yukon and the Northwest Territories

GREAT BRITAIN

England and Wales—Infectious diseases—13 weeks ended June 29, 1935.—During the 13 weeks ended June 29, 1935, cases of certain infectious diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	12,915	Puerperal pyrexia	1,522
Ophthalmia neonatorum	1,211	Scarlet fever	25,952
Pneumonia	14,004	Smallpox	1
Puerperal fever	648	Typhoid fever	320

England and Wales—Vital statistics—Second quarter ended June 30, 1935.—During the quarter ended June 30, 1935, 155,962 live births and 121,920 deaths were registered in England and Wales. The following statistics are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar General of England and Wales. The figures are provisional.

Birth and death rates in England and Wales, quarter ended June 30, 1935

Annual rates per 1,000 population:	
Live births	15.50
Stillbirths	.65
Deaths, all causes	12.10
Deaths under 1 year of age	[1] 56
Deaths from—	
Diarrhea and enteritis (under 2 years of age)	[1] 4.80
Annual rates per 1,000 population—Contd.	
Deaths from—Continued.	
Diphtheria	0.08
Influenza	.28
Measles	.04
Scarlet fever	.02
Violence	.51
Whooping cough	.05

[1] Per 1,000 live births.

IRISH FREE STATE

Vital statistics—Second quarter, 1935.—The following statistics for the Irish Free State for the quarter ended June 30, 1935, are taken from the Quarterly Return of Marriages, Births, and Deaths issued by the Registrar General, and are provisional:

	Number	Rates per 1,000 population		Number	Rates per 1,000 population
Population	3,033,000		Deaths from—Continued.		
Marriages	3,063	4.00	Influenza	341	0.45
Births	14,913	19 70	Measles	111	
Total deaths	10,933	14.40	Puerperal sepsis	22	[2] 1.48
Deaths under 1 year of age	993	([1])	Scarlet fever	14	
Deaths from—			Tuberculosis (all forms)	1,085	1.43
Cancer	797	1.05	Typhoid fever	21	
Diarrhea and enteritis (under 2 years of age)	111		Typhus fever	2	
Diphtheria	102		Whooping cough	35	

[1] Deaths under 1 year per 1,000 births. 67.
[2] Per 1,000 births.

MEXICO

Anthrax.—A report dated September 7, 1935, stated that anthrax was prevalent among cattle in the State of Durango, in the area north of the city of Durango. A later report, dated September 18, stated that anthrax had appeared in southern San Luis Potosi and northern Guanajuato.

Smallpox.—During the month of June 1935, smallpox was reported in Mexico as follows: Aguascalientes State, Aguascalientes, 3 cases, 3 deaths; Campeche State, 2 cases; Chihuahua State, 4 cases, 1 death, Chihuahua, 3 cases; Guanajuato State, Leon, 13 cases, 1 death; Hidalgo State, 1 case, 1 death; Jalisco State, 5 cases, 1 death; Mexico State, 1 case, 1 death; Mexico, D. F., 140 cases, 42 deaths, Mexico City, 118 cases, 38 deaths; Morelos State, 1 case; Nuevo Leon State, 12 cases, 5 deaths; Guadalajara, 5 cases, 5 deaths; Oaxaca State, 2 cases; Pueblo State, Pueblo, 6 cases; Queretaro State, 5 cases, 1 death; San Luis Potosi State, San Luis Potosi, 5 cases, 1 death.

During the month of July 1935, smallpox was reported in Mexico as follows: Aguascalientes State, Aguascalientes, 3 cases; Campeche State, 1 case; Guanajuato State, 4 cases, 2 deaths; Leon, 2 cases; Jalisco State, 10 cases, 1 death; Guadalajara, 8 cases, 1 death; Lower California, 3 cases; Mexico State, 1 case, 1 death; Mexico, D. F., 54 cases, 25 deaths; Mexico City, 41 cases, 19 deaths; Pueblo State, Pueblo, 2 cases; San Luis Potosi State, 5 cases, 2 deaths; San Luis Potosi, 3 cases, 2 deaths.

Typhus fever.—During the month of June 1935, typhus fever was reported in Mexico as follows: Aguascalientes State, 1 case, 1 death; Guanajuato State, 4 cases, Leon, 1 case; Mexico, D. F., 98 cases, 45 deaths; Mexico City, 91 cases, 45 deaths; Michoacan State, 1 death; Oaxaca State, 1 case, Pueblo State, Pueblo, 4 cases; Queretaro State, 1 case; San Luis Potosi State, San Luis Potosi, 5 cases; Vera Cruz State, 1 case.

During the month of July 1935, typhus fever was reported in Mexico as follows: Durango State, 1 case, Guanajuato State, 9 cases, 1 death, Leon, 5 cases, 1 death, Hidalgo State, 6 cases; Jalisco State, Guadalajara, 1 case, Mexico State, 2 cases, Mexico, D. F., 178 cases, 83 deaths, Mexico City, 170 cases, 82 deaths, Oaxaca State, 5 cases; Pueblo State, 7 cases, 3 deaths, Pueblo, 5 cases, 3 deaths; San Luis Potosi State, 11 deaths, San Luis Potosi, 1 case.

YUGOSLAVIA

Communicable diseases—August 1935.—During the month of August 1935, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	148	14	Poliomyelitis	14	1
Cerebrospinal meningitis	[illegible]	1	Scarlet fever	266	2
Diphtheria and croup	468	18	Sepsis	11	4
Dysentery	612	63	Tetanus	60	25
Erysipelas	168	13	Typhoid fever	474	43
Measles	14	1	Typhus fever	31	3
Paratyphoid fever	41	1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 27, 1935, pages 1354–1368. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 25, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Bolivia—Santa Cruz Department—Vallegrande.—During the month of August 1935, four suspected cases of plague were reported at Vallegrande, Santa Cruz Department, Bolivia.

Hawaii Territory—Maui Island—Makawao District—Kahului.—On September 27, 1935, one rat was proved positive for plague about 10 miles from the port of Kahului, Makawao District, Maui Island, Hawaii Territory.

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VOL. 50 OCTOBER 18, 1935 NO. 42

MILK-SANITATION RATINGS OF CITIES

Cities for Which Milk-Sanitation Ratings of 90 Percent or More Were Reported by State Milk-Sanitation Authorities During the Months of July, August, and September 1935

The last complete revision of the list of American municipalities for which milk-sanitation ratings of 90 percent or more were reported by their respective State milk-sanitation authorities was published in the Public Health Reports for July 26, 1935 (Reprint No. 1694). A supplementary list is presented herewith showing the additional cities for which ratings of 90 percent or more were reported during the months of July, August, and September 1935.

The rules governing inclusion in these lists and the significance of the milk-sanitation ratings made in accordance with the Public Health Service rating methods were published in the Public Health Reports for July 26, 1935.

Cities included in this and the previous list are advised to bring their milk-sanitation status to the level required by the latest edition of the Public Health Service Milk Ordinance and Code. Cities which are not now on the list should improve their milk supplies as much as possible and then request the State milk-control authority to determine their ratings.

State milk-control authorities are urged to equip themselves to make milk-sanitation ratings of their cities as soon as possible, in fairness to their cities. States already equipped for this work should not permit ratings of their cities to lapse, as no rating more than 2 years old will be included in the complete semiannual revision of the list to be published next January.

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Cities having ratings of 90 percent or more according to reports received during July, August, and September 1935

City	Percentage of milk pasteurized	Date of rating	City	Percentage of milk pasteurized	Date of rating
ARIZONA			**NORTH CAROLINA**		
Flagstaff	32	February 1935.	Kinston	17	Sept. 17, 1935.
Tucson	85	June 21, 1935.	Tarboro	100	Apr. 18, 1935.
Yuma	39	June 14, 1935.	**TEXAS**		
MISSISSIPPI			Big Spring	27	Aug. 5 1935.
Greenville	26	Aug. 29, 1935.	Gainesville	46	Sept. 6, 1935.
Pascagoula	0	Sept. 5, 1935.	Victoria	0	February 1935.
Picayune	0	June 5, 1935.	Waco	31	Sept. 20, 1935.
Vicksburg	41	June 20, 1935.	Yoakum	0	March 1935.
MISSOURI					
Columbia	39	June 7, 1935.			
St. Joseph	31	Aug. 9, 1935.			
Springfield	39	Aug. 24, 1935.			

PROVISIONAL SUMMARY OF MORTALITY STATISTICS FOR THE UNITED STATES, 1932, 1933, AND 1934

According to figures compiled by the Bureau of the Census there were 1,396,903 deaths from all causes in the United States in 1934, representing a mortality rate of 11 per 1,000 estimated population—an increase over 1933, when the rate was 10.7. The 1933 death rate was the lowest ever recorded since the annual collection of mortality statistics was begun in 1900.

The accompanying table gives the number of deaths and the death rates in each year from 1932 to 1934, inclusive, for each cause according to the titles of the International List of Causes of Death.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
Total deaths (all causes exclusive of stillbirths)	1,396,903	1,342,106	1,308,529	1,104.9	1,067.8	1,089.3
I. Infectious and parasitic diseases	*148,124*	*155,821*	*156,979*	*117.2*	*124.0*	*130.7*
Typhoid fever	4,162	4,389	4,363	3.3	3.5	3.6
Paratyphoid fever	75	84	78	.1	.1	.1
Typhus fever	86	81	36	.1	.1	(1)
Relapsing fever	1			(1)		
Undulant fever	65	72	62	.1	.1	.1
Smallpox	24	39	38	(1)	(1)	(1)
Measles	6,986	2,813	1,941	5.5	2.2	1.6
Scarlet fever	2,524	2,546	2,577	2.0	2.0	2.1
Whooping cough	7,518	4,463	5,364	5.9	3.6	4.5
Diphtheria	4,159	4,937	5,418	3.3	3.9	4.5
Influenza	21,868	33,193	37,066	17.3	26.4	30.9
Respiratory complications specified	13,966	21,052	24,120	11.0	16.7	20.1
Respiratory complications not specified	7,902	12,141	12,946	6.3	9.7	10.8
Dysentery	3,373	2,815	2,083	• 2.7	2.2	1.7

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
I. Infectious and parasitic diseases—Con.						
Plague	2	1	-----	(1)	(1)	-----
Erysipelas	1,947	2,017	1,934	1.5	1.6	1.6
Acute poliomyelitis, acute polioencephalitis	852	797	828	.7	.6	.7
Lethargic or epidemic encephalitis	923	1,357	874	.7	1.1	.7
Epidemic cerebrospinal meningitis	1,272	1,482	1,677	1.0	1.2	1.4
Glanders	2	-----	-----	(1)	-----	-----
Anthrax (Bacillus anthracis), malignant pustule	9	11	12	(1)	(1)	(1)
Rabies	80	65	55	.1	.1	(1)
Tetanus	1,226	1,253	1,119	1.0	1.0	.9
Tuberculosis (all forms)	71,609	74,842	75,509	56.6	59.5	62.9
Respiratory system	64,706	67,422	67,789	51.2	53.6	56.4
Meninges and central nervous system	2,109	2,212	2,317	1.7	1.8	1.9
Intestines and peritoneum	1,579	1,815	1,942	1.2	1.4	1.6
Vertebral column	738	755	809	.6	.6	.7
Bones and joints (vertebral column excepted)	398	382	426	.3	.3	.4
Bones	133	164	169	.1	.1	.1
Joints	265	218	257	.2	.2	.2
Skin and subcutaneous cellular tissue	27	38	59	(1)	(1)	(1)
Lymphatic system (bronchial, mesenteric, and retroperitoneal glands excepted)	150	177	164	.1	.1	.1
Genitourinary system	569	564	520	.5	.4	.4
Other organs	96	101	119	.1	.1	.1
Disseminated tuberculosis	1,237	1,376	1,364	1.0	1.1	1.1
Acute	1,095	1,195	1,193	.9	1.0	1.0
Chronic	142	17	14	.1	(1)	(1)
Unspecified	-----	164	157	-----	.1	.1
Leprosy	32	27	25	(1)	(1)	(1)
Syphilis	11,726	11,039	10,684	9.3	8.8	8.9
Gonococcus infection and other venereal diseases	1,051	998	916	.8	.8	.8
Purulent infection, septicemia (nonpuerperal)	928	931	869	.7	.7	.7
Malaria	4,520	4,678	2,568	3.6	3.7	2.1
Other diseases due to protozoal parasites	52	61	52	(1)	(1)	(1)
Ankylostomiasis	24	20	24	(1)	(1)	(1)
Hydatid cysts	26	36	36	(1)	(1)	(1)
Liver	18	26	24	(1)	(1)	(1)
Other organs	8	10	12	(1)	(1)	(1)
Other diseases caused by helminths	107	101	114	.1	.1	.1
Mycoses	287	261	249	.2	.2	.2
Other infectious and parasitic diseases	608	412	408	.5	.3	.3
II. Cancers and other tumors	*140,771*	*134,539*	*128,597*	*111.3*	*107.0*	*107.1*
Cancer and other malignant tumors	134,428	128,479	122,739	106.3	102.2	102.2
Of the buccal cavity and pharynx	5,009	4,845	4,596	4.0	3.9	3.8
Lip	712	692	670	.6	.6	.6
Tongue	1,056	1,036	946	.8	.8	.8
Mouth	555	505	441	.4	.4	.4
Jaw	1,053	1,054	1,034	.8	.8	.9
Other and unspecified parts of the buccal cavity	611	620	585	.5	.5	.5
Pharynx	1,022	938	920	.8	.7	.8
Of the digestive tract and peritoneum	65,476	63,176	60,810	51.8	50.3	50.6
Esophagus	2,243	2,111	2,063	1.8	1.7	1.7
Stomach and duodenum	26,869	26,566	25,909	21.3	21.1	21.6
Intestines (except duodenum, rectum, anus)	14,105	12,972	12,137	11.2	10.3	10.1
Rectum and anus	6,740	6,372	5,890	5.3	5.1	4.9
Liver and biliary passages	10,668	10,505	10,452	8.4	8.4	8.7
Pancreas	3,775	3,567	3,371	3.0	2.8	2.8
Mesentery and peritoneum	999	915	927	.8	.7	.8
Others under this title	77	78	61	.1	.1	.1
Of the respiratory system	5,473	4,940	4,549	4.3	3.9	3.8
Larynx	1,100	1,079	1,048	.9	.9	.9
Lungs and pleura	3,877	3,410	3,166	3.1	2.7	2.6
Other respiratory organs	496	451	335	.4	.4	.3
Of the uterus	15,635	15,221	14,908	12.4	12.1	12.4
Of other female genital organs	3,271	2,890	2,684	2.6	2.3	2.2
Ovary and Fallopian tube	2,676	2,304	2,167	2.1	1.8	1.8
Vagina and vulva	545	534	478	.4	.4	.4
Other female genital organs	50	52	39	(1)	(1)	(1)
Of the breast	13,171	12,484	11,889	10.4	9.9	9.9

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
II. Cancers and other tumors—Continued.						
Cancer and other malignant tumors—Con.						
Of the male genitourinary organs	11, 342	10, 455	9, 594	9.0	8.3	8.0
Kidneys and suprarenals (male)	1, 149	1, 040	945	.9	.8	.8
Bladder (male)	2 825	2, 725	2, 493	2.2	2.2	2.1
Prostate	6, 578	5, 980	5, 466	5.2	4.8	4.6
Testes	452	394	352	.4	.3	.3
Scrotum	30	34	44	(1)	(1)	(1)
Other male genitourinary organs	308	282	294	.2	.2	.2
Of the skin	3, 315	3, 358	3, 137	2.6	2.7	2.6
Of other or unspecified organs	11, 736	11, 110	10, 572	9.3	8.8	8.8
Kidneys and suprarenals (female)	865	812	762	.7	.6	.6
Bladder (female)	1, 351	1, 368	1, 266	1.1	1.1	1.1
Brain	1, 164	1, 018	932	.9	.8	.8
Bones (except jaw)	1, 832	1, 814	1, 639	1.4	1.4	1.4
Other or unspecified organs	6. 524	6, 098	5, 973	5.2	4.9	5.0
Nonmalignant tumors	4, 500	4, 054	3, 897	3.6	3.2	3.2
Ovary	183	156	167	.1	.1	.1
Uterus	2, 707	2, 484	2, 432	2.1	2.0	2.0
Other female genital organs	8	3	12	(1)	(1)	(1)
Other organs	1, 602	1, 411	1, 286	1.3	1.1	1.1
Tumors of which the nature is not specified	1, 843	2, 006	1, 961	1.5	1.6	1.6
Ovary	18	21	22	(1)	(1)	(1)
Uterus	12	10	18	(1)	(1)	(1)
Other female genital organs	3	2	1	(1)	(1)	(1)
Other organs	1, 810	1, 973	1, 920	1.4	1.6	1.6
III. Rheumatic diseases, nutritional diseases, diseases of the endocrine glands, and other general diseases	*42, 568*	*41, 614*	*40, 983*	*33.7*	*33.1*	*34.1*
Acute rheumatic fever	2, 330	2, 570	2, 601	1.8	2.0	2.2
Chronic rheumatism, osteoarthritis	1, 695	1, 615	1, 501	1.3	1.3	1.2
Gout	2	3	1	(1)	(1)	(1)
Diabetes mellitus	28, 000	26, 835	26, 368	22.1	21.3	22.0
Scurvy	36	28	33	(1)	(1)	(1)
Beriberi	5	1	5	(1)	(1)	(1)
Pellagra	3, 602	3, 955	3, 694	2.8	3.1	3.1
Rickets	292	339	354	.2	.3	.3
Osteomalacia	21	18	13	(1)	(1)	(1)
Diseases of the pituitary body	117	70	60	.1	.1	(1)
Diseases of thyroid and parathyroid glands	4, 228	4, 114	4, 344	3.3	3.3	3.6
Simple goiter	247	277	290	.2	.2	.2
Exophthalmic goiter	3, 502	3, 398	3, 666	2.8	2.7	3.1
Others under this title	479	439	388	.4	.3	.3
Diseases of the thymus gland	1, 369	1, 259	1, 230	1.1	1.0	1.0
Diseases of the adrenals (Addison's disease, not specified as tuberculous)	347	366	357	.3	.3	.3
Other general diseases	524	441	422	.4	.4	.4
IV. Diseases of the blood and blood-making organs	*10, 250*	*10, 186*	*9, 866*	*8.1*	*8.1*	*8.2*
Hemorrhagic conditions	825	829	791	.7	.7	.7
Anemias	3, 943	4, 288	4, 390	3.1	3.4	3.7
Pernicious anemia	3, 374	3, 703	3, 890	2.7	2.9	3.2
Other anemias	569	585	500	.5	.5	.4
Leukemias and pseudoleukemias	4, 915	4, 528	4, 142	3.9	3.6	3.4
True leukemias	3, 403	3, 088	2, 802	2.7	2.5	2.3
Pseudoleukemias (Hodgkin's disease)	1, 512	1, 440	1, 340	1.2	1.1	1.1
Diseases of the spleen	430	412	431	.3	.3	.4
Other diseases of blood and blood-making organs	137	129	112	.1	.1	.1
V. Chronic poisonings and intoxications	*3, 921*	*3, 561*	*3, 300*	*3.1*	*2.8*	*2.7*
Alcoholism (acute or chronic)	3 655	3, 297	3, 049	2.9	2.6	2.5
Chronic poisoning by other organic substances	123	123	146	.1	.1	.1
Chronic poisoning by mineral substances	143	141	105	.1	.1	.1
Lead	118	117	78	.1	.1	.1
Others under this title	25	24	27	(1)	(1)	(1)
VI. Diseases of the nervous system and of the organs of special sense	*134, 365*	*130, 959*	*129, 665*	*106.3*	*104.2*	*107.9*
Encephalitis (nonepidemic)	1, 527	1, 535	1, 293	1.2	1.2	1.1
Meningitis	2, 360	2, 411	2, 359	1.9	1.9	2.0
Simple meningitis	2, 094	2, 108	2, 037	1.7	1.7	1.7
Nonepidemic cerebrospinal meningitis	266	303	322	.2	.2	.3
Progressive locomotor ataxia (tabes dorsalis)	1, 151	1, 126	1, 188	.9	.9	1.0

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
VI. Diseases of the nervous system—Contd.						
Other diseases of the spinal cord	3,137	3,014	3,026	2.5	2.4	2.5
Cerebral hemorrhage, cerebral embolism, and thrombosis	108,110	105,555	104,897	85.5	84.0	87.3
Cerebral hemorrhage	97,148	94,573	94,694	76.8	75.2	78.8
Cerebral embolism and thrombosis	6,392	5,930	5,397	5.1	4.7	4.5
Softening of brain	720	703	688	.6	.6	.6
Hemiplegia and other paralysis, cause unspecified	3,870	4,349	4,118	3.0	3.5	3.4
General paralysis of the insane	4,805	4,538	4,573	3.8	3.6	3.8
Dementia praecox and other psychoses	1,468	1,449	1,312	1.2	1.2	1.1
Epilepsy	2,913	2,724	2,842	2.3	2.2	2.4
Convulsions (under 5 years of age)	774	797	841	.6	.6	.7
Other diseases of the nervous system	3,929	3,751	3,367	3.1	3.0	2.8
Diseases of the organs of vision	91	85	77	.1	.1	.1
Diseases of the ear and mastoid process	4,100	3,974	3,800	3.2	3.2	3.2
Diseases of ear	2,543	2,404	2,322	2.0	1.9	1.9
Diseases of mastoid process	1,557	1,570	1,538	1.2	1.2	1.3
VII. Diseases of the circulatory system	*333,296*	*314,004*	*295,509*	*263.6*	*249.8*	*246.0*
Pericarditis	709	879	907	.6	.7	.8
Acute endocarditis	3,574	3,433	3,559	2.8	2.7	3.0
Specified as acute	2,982	2,829	2,953	2.4	2.3	2.5
Unspecified (under 45 years of age)	592	604	606	.5	.5	.5
Chronic endocarditis, valvular diseases	57,762	58,902	61,335	45.7	46.9	51.0
Endocarditis, specified as chronic, and other valvular diseases	54,048	55,009	57,358	42.8	43.8	47.7
Endocarditis, unspecified (45 years and over)	3,714	3,893	3,977	2.9	3.1	3.3
Diseases of the myocardium	136,726	130,484	125,526	108.1	103.8	104.5
Acute myocarditis	4,800	4,357	4,375	3.8	3.5	3.6
Myocarditis, unspecified (under 45 years)	1,221	1,251	1,457	1.0	1.0	1.2
Chronic myocarditis, myocardial degeneration	99,679	94,720	91,181	78.8	75.4	75.9
Unspecified	31,026	30,156	28,513	24.5	24.0	23.7
Diseases of coronary arteries, angina pectoris	54,089	47,486	37,346	42.8	37.8	31.1
Angina pectoris	19,922	19,996	19,893	15.8	15.9	16.6
Diseases of coronary arteries	34,167	27,490	17,453	27.0	21.9	14.5
Other diseases of the heart	50,864	45,176	40,023	40.2	35.9	33.3
Functional diseases of heart	878	855	716	.7	.7	.6
Other and unspecified	49,986	44,321	39,307	39.5	35.3	32.7
Aneurysm (except of heart)	2,393	2,281	2,181	1.9	1.8	1.8
Arteriosclerosis (coronary arteries excepted)	22,696	21,062	20,534	18.0	16.8	17.1
Gangrene	900	959	924	.7	.8	.8
Other diseases of the arteries	1,684	1,529	1,526	1.3	1.2	1.3
Diseases of veins (varices, hemorrhoids, phlebitis, etc.)	715	700	698	.6	.6	.6
Diseases of lymphatic system (lymphangitis, etc.)	169	175	172	.1	.1	.1
Idiopathic anomalies of the blood pressure	743	655	529	.6	.5	.4
Other diseases of the circulatory system	272	283	249	.2	.2	.2
VIII. Diseases of the respiratory system	*114,879*	*100,548*	*105,935*	*90.9*	*80.0*	*88.2*
Diseases of the nasal fossae and annexae	1,097	1,041	1,089	.9	.8	.9
Diseases of nasal fossae	375	311	381	.3	.2	.3
Others under this title	722	730	708	.6	.6	.6
Diseases of the larynx	522	504	488	.4	.4	.4
Bronchitis	4,145	4,062	4,338	3.3	3.2	3.6
Acute	1,422	1,276	1,597	1.1	1.0	1.3
Chronic	1,794	1,853	1,840	1.4	1.5	1.5
Unspecified	929	933	901	.7	.7	.8
Broncho-pneumonia (including capillary bronchitis)	41,923	37,209	39,174	33.2	29.6	32.6
Broncho-pneumonia	41,520	36,827	38,708	32.8	29.3	32.2
Capillary bronchitis	403	382	466	.3	.3	.4
Lobar pneumonia	54,794	45,740	49,524	43.3	36.4	41.2
Pneumonia, unspecified	3,856	4,000	3,776	3.1	3.2	3.1
Pleurisy	2,897	2,646	2,618	2.3	2.1	2.2
Congestion, edema, embolism, hemorrhagic infarct, thrombosis of lungs	2,051	1,963	1,798	1.6	1.6	1.5
Pulmonary embolism and thrombosis	511	536	442	.4	.4	.4
Others under this title	1,540	1,427	1,356	1.2	1.1	1.1
Asthma	1,983	1,863	1,804	1.6	1.5	1.5
Pulmonary emphysema	119	147	114	.1	.1	.1
Other diseases of the respiratory system (tuberculosis excepted)	1,492	1,373	1,212	1.2	1.1	1.0

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
IX. Diseases of the digestive system	*95,961*	*92,573*	*87,300*	*75.9*	*73.7*	*72.7*
Diseases of buccal cavity and annexa and of pharynx, tonsils	5,970	5,680	5,191	4.7	4.5	4.3
Diseases of pharynx and tonsils	4,994	4,747	4,350	4.0	3.8	3.6
Others under this title	976	933	841	.8	.7	.7
Diseases of esophagus	169	155	140	.1	.1	.1
Ulcer of stomach and duodenum	7,690	7,539	7,192	6.1	6.0	6.0
Ulcer of stomach	5,328	5,197	4,909	4.2	4.1	4.1
Ulcer of duodenum	2,362	2,342	2,283	1.9	1.9	1.9
Other diseases of stomach (cancer excepted)	3,650	3,853	3,670	2.9	3.1	3.1
Diarrhea and enteritis (under 2 years of age)	17,019	15,707	14,375	13.5	12.5	12.0
Diarrhea and enteritis (2 years and over)	6.192	5,966	5,244	4.9	4.7	4.4
Appendicitis	18,129	17,717	17,111	14.3	14.1	14.2
Hernia, intestinal obstruction	13,023	12,607	12,269	10.3	10.0	10.2
Hernia	5,093	4,931	4,863	4.0	3.9	4.0
Intestinal obstruction	7,930	7,676	7,406	6.3	6.1	6.2
Other diseases of intestines	1,455	1,369	1,185	1.2	1.1	1.0
Cirrhosis of liver	9,733	9,349	8,681	7.7	7.4	7.2
Other diseases of liver (including yellow atrophy of liver)	1,800	1,678	1,615	1.4	1.3	1.3
Yellow atrophy of liver	511	500	491	.4	.4	.4
Others under this title	1,289	1,178	1,124	1.0	.9	.9
Biliary calculi	4,749	4,541	4,577	3.8	3.6	3.8
Other diseases of gall-bladder, biliary passages	4,058	4,119	3,866	3.2	3.3	3.2
Diseases of pancreas	746	677	677	.6	.5	.6
Peritonitis, cause not specified	1,578	1,616	1,507	1.2	1.3	1.3
X. Diseases of the genitourinary system	*125,171*	*121,572*	*120,631*	*99.0*	*96.7*	*100.4*
Acute nephritis (including unspecified under 10 years of age)	4,508	4,732	4,323	3.6	3.8	3.6
Chronic nephritis	93,922	90,805	92,051	74.3	72.2	76.6
Nephritis, unspecified (10 years and over)	8,154	8,727	8,377	6.4	6.9	7.0
Other diseases of kidneys and ureters (puerperal diseases excepted)	3,730	3,513	3,382	3.0	2.8	2.8
Calculi of urinary passages	1,372	1,238	1,183	1.1	1.0	1.0
Diseases of bladder (tumor excepted)	740	750	751	.6	.6	.6
Diseases of urethra, urinary abscess, etc	468	514	410	.4	.4	.3
Disease of prostate	8,357	7,690	6,730	6.6	6.1	5.6
Diseases of male genital organs, not specified as venereal	135	109	125	1.0	.1	.1
Diseases of female genital organs, not specified as venereal	3,785	3,494	3,299	3.0	2.8	2.7
Cysts of ovary	754	697	700	.6	.6	.6
Other diseases of ovaries, diseases of tubes and parametrium	1,993	1,811	1,723	1.6	1.5	1.4
Diseases of uterus	943	814	787	.7	.6	.7
Nonpuerperal diseases of breast (cancer excepted)	16	11	18	(1)	(1)	(1)
Others under this title	79	61	71	.1	(1)	.1
XI. Diseases of pregnancy, childbirth, and the puerperal state	*12,859*	*12,885*	*13,293*	*10.2*	*10.3*	*11.1*
Abortion with septic conditions	2,204	2,037	2,057	1.7	1.6	1.7
Abortion without mention of septic conditions (to include hemorrhages)	570	640	717	.5	.5	.6
Ectopic gestation	571	610	571	.5	.5	.5
Septic conditions specified	106	121	108	.1	.1	.1
Septic conditions not mentioned	465	489	463	.4	.4	.4
Other accidents of pregnancy (not to include hemorrhages)	94	88	86	.1	.1	.1
Puerperal hemorrhage	1,404	1,339	1,392	1.1	1.1	1.2
Placenta praevia	432	411	422	.3	.3	.4
Other puerperal hemorrhages	972	928	970	.8	.7	.8
Puerperal septicemia (not specified as due to abortion)	2,808	2,729	2,774	2.2	2.2	2.3
Puerperal septicemia and pyemia	2,800	2,719	2,761	2.2	2.2	2.3
Puerperal tetanus	8	10	13	(1)	(1)	(1)
Puerperal albuminuria and eclampsia	2,431	2,520	2,692	1.9	2.0	2.2
Other toxemias of pregnancy	559	535	499	.4	.4	.4
Puerperal phlegmasia, alba dolens, embolus, sudden death (not specified as septic)	561	592	628	.4	.5	.5
Other accidents of childbirth	1,621	1,750	1,827	1.3	1.4	1.5
Other and unspecified conditions of puerperal state	36	45	50	(1)	(1)	(1)

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths 1934	Number of deaths 1933	Number of deaths 1932*	Rate per 100,000 estimated population 1934	Rate per 100,000 estimated population 1933	Rate per 100,000 estimated population 1932*
XII. Diseases of the skin and cellular tissue	*2,144*	*2,133*	*1,895*	*1.7*	*1.7*	*1.6*
Furuncle, carbuncle	605	634	538	.5	.5	.4
Phlegmon, acute abscess	766	753	654	.6	.6	.5
Other diseases of skin and annexa, and of cellular tissue	773	746	703	.6	.6	.6
XIII. Diseases of the bones and organs of locomotion	*1,694*	*1,596*	*1,606*	*1.3*	*1.3*	*1.3*
Osteomyelitis	1,115	1,071	1,070	.9	.9	.9
Other diseases of the bones (tuberculosis excepted)	189	177	179	.1	.1	.1
Diseases of joints and other organs of locomotion	390	348	357	.3	.3	.3
XIV. Congenital malformations	*12,640*	*12,112*	*12,363*	*10.0*	*9.6*	*10.3*
Congenital malformations	12,640	12,112	12,363	10.0	9.6	10.3
Congenital hydrocephalus	1,653	1,542	1,642	1.3	1.2	1.4
Spina bifida and meningocele	1,317	1,257	1,400	1.0	1.0	1.2
Congenital malformations of the heart	6,368	6,208	6,294	5.0	4.9	5.2
Others under this title	3,302	3,105	3,027	2.6	2.5	2.5
XV. Diseases of early infancy	*54,348*	*51,453*	*51,571*	*43.0*	*40.9*	*42.9*
Congenital debility	4,223	4,067	3,860	3.3	3.2	3.2
Premature birth	35,102	32,953	33,143	27.8	26.2	27.6
Injury at birth	9,860	9,506	9,681	7.8	7.6	8.1
Other diseases peculiar to early infancy	5,163	4,927	4,887	4.1	3.9	4.1
XVI. Senility	*10,961*	*11,318*	*10,207*	*8.7*	*9.0*	*8.5*
XVII. Violent and accidental deaths	*132,022*	*123,204*	*117,830*	*104.4*	*98.0*	*98.1*
Suicide	18,828	19,993	20,927	14.9	15.9	17.4
By solid or liquid poisons or by absorption of corrosive substances	2,960	3,141	3,320	2.3	2.5	2.8
By poisonous gas	2,374	2,694	3,001	1.9	2.1	2.5
By hanging or strangulation	3,517	3,543	3,632	2.8	2.8	3.0
By drowning	872	980	996	.7	.8	.8
By firearms	7,296	7,798	8,075	5.8	6.2	6.7
By cutting or piercing instruments	847	821	874	.7	.7	.7
By jumping from high places	633	689	702	.5	.5	.6
By crushing	147	141	156	.1	.1	.1
By other means	182	186	171	.1	.1	.1
Homicide	12,055	12,124	11,035	9.5	9.6	9.2
By firearms	7,702	7,863	7,458	6.1	6.3	6.2
By cutting or piercing instruments	2,122	2,065	1,650	1.7	1.6	1.4
By other means	2,231	2,196	1,927	1.8	1.7	1.6
Accidental, other, or undefined	101,139	91,087	85,868	80.0	72.5	71.5
Attack by venomous animals	117	155	127	.1	.1	.1
Poisoning by food	738	689	638	.6	.5	.5
Absorption of poisonous gas	1,639	1,594	1,988	1.3	1.3	1.7
Supplemental	56	74	64	(1)	.1	.1
Other acute accidental poisonings (gas excepted)	1,417	1,490	1,605	1.1	1.2	1.3
Conflagration	1,752	1,521	1,555	1.4	1.2	1.3
Burns (conflagration excepted)	5,758	5,232	5,358	4.6	4.2	4.5
Supplemental	751	588	561	.6	.5	.5
Mechanical suffocation	1,055	934	904	.8	.7	.8
Supplemental	69	65	40	.1	.1	(1)
Drowning	6,006	6,219	6,199	4.8	4.9	5.2
Supplemental	1,320	1,246	1,228	1.0	1.0	1.0
Traumatism:						
By firearms (wounds of war excepted)	3,023	3,026	2,928	2.4	2.4	2.4
By cutting or piercing instruments (wounds of war excepted)	925	836	757	.7	.7	.6
Supplemental	329	265	230	.3	.2	.2
By fall, crushing, landslide	32,854	29,376	26,677	26.0	23.4	22.2
By fall	20,762	18,933	17,834	16.4	15.1	14.8
Supplemental	3,066	2,813	2,606	2.4	2.2	2.2
By crushing, landslide	613	556	502	.5	.4	.4
Supplemental	8,413	7,074	5,735	6.7	5.6	4.8
Cataclysm	117	503	404	.1	.4	.3
Injuries by animals	660	591	571	.5	.5	.5

See footnotes at end of table.

Provisional summary of mortality statistics for the United States for the years 1932, 1933, and 1934—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
XVII. Violent and accidental deaths—Con.						
Accidental, other, or undefined—Continued.						
Hunger and thirst	21	39	27	(1)	(1)	(1)
Excessive cold	437	319	287	.3	.3	.2
Excessive heat	3,250	1,025	689	2.6	.8	.6
Lightning	442	372	362	.3	.3	.3
Due to electric currents	623	575	589	.5	.5	.5
Supplemental	100	104	86	.1	.1	.1
Other accidents	37,483	34,083	31,858	29.6	27.1	26.5
Foreign bodies	681	660	633	.5	.5	.5
Others under this title	4,558	4,311	3,835	3.6	3.4	3.2
Supplemental	32,244	29,103	27,390	25.5	23.2	22.8
Violent deaths of unknown nature	5	11	5	(1)	(1)	(1)
Wounds of war	------	2	------	------	(1)	------
Legal executions	162	153	131	.1	.1	.1
XVIII. Ill-defined causes of death	*20,929*	*22,028*	*20,999*	*16.6*	*17.5*	*17.5*
Sudden death	2,004	2,089	1,951	1.6	1.7	1.6
Cause of death not specified or ill-defined	18,925	19,939	19,048	15.0	15.9	15.9
Ill-defined	5,128	5,476	4,804	4.1	4.4	4.0
Not specified or unknown	13,797	14,463	14,244	10.9	11.5	11.9

The following tabulation is made in accordance with the requirements of the International Conference at Paris, 1929. The deaths included represent a reclassification of accidental deaths for comparison with figures reported in prior years.

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1934	1933	1932*	1934	1933	1932*
Accidents in mines and quarries	1,480	1,338	1,520	1.2	1.1	1.3
Accidents from agricultural machinery	226	275	285	.2	.2	.2
Elevator accidents	231	217	218	.2	.2	.2
Accidents from machinery used for recreation	14	8	14	(1)	(1)	(1)
Other machinery accidents	1,139	931	878	.9	.7	.7
Railroad and automobile collisions	1,457	1,437	1,466	1.2	1.1	1.2
Other railroad accidents	3,789	3,973	3,502	3.0	3.2	2.9
Street car and automobile collisions	332	318	304	.3	.3	.3
Other street car accidents	552	529	523	.4	.4	.4
Automobile accidents (primary)	33,980	29,323	26,350	26.9	23.3	21.9
Motorcycle accidents	332	285	241	.3	.2	.2
Other land transportation accidents	1,202	1,235	1,131	1.0	1.0	.9
Water transportation accidents	1,186	1,029	1,122	.9	.8	.9
Air transportation accidents	428	434	386	.3	.3	.3

Deaths in the preceding table are included under their appropriate titles of the International List as shown in the following table:

Absorption of poisonous gas	56	74	64	(1)	0.1	0.1
Burns (conflagration excepted)	751	588	561	0.6	.5	.5
Mechanical suffocation	69	65	40	.1	.1	(1)
Drowning	1,320	1,246	1,228	1.0	1.0	1.0
Cutting or piercing instruments	329	265	230	.3	.2	.2
Fall	3,066	2,813	2,606	2.4	2.2	2.2
Crushing	8,413	7,074	5,735	6.7	5.6	4.8
Due to electric currents	100	104	86	.1	.1	.1
Other accidents	32,244	29,103	27,390	25.5	23.2	22.8

* Included 96.3 percent of United States population.
1 Less than 1/10 of 1 per 100,000 population.

BACTERIOLOGICAL EXAMINATIONS OF OYSTERS AND WATER FROM NARRAGANSETT BAY DURING THE WINTER AND SPRING OF 1927-28

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During the winter of 1927-28, the United States Public Health Service, in connection with its investigations relating to the sanitary control of the shellfish industry, undertook a fairly extensive series of bacteriological examinations of oysters taken from selected beds in Narragansett Bay, with coincident examinations of the immediately overlying waters. The special purpose in view was to ascertain the relation between the bacteriological quality of oysters and that of the overlying water during the active marketing season in a northern area where low water temperatures are sustained.

METHODS

The field work was carried on jointly by the authors, on board the United States Public Health Service Laboratory launch *Shearwater*, which was used both for the collection and examination of samples. Oysters for examination were taken directly from their beds by means of a small hand dredge towed by the launch. Samples of the overlying waters were collected at the same time, both from the surface and from near the bottom.

The surface-water samples were collected primarily for comparison with similar samples collected in the same area during the previous summer, and also to ascertain in a rough way whether a material difference existed between the bacterial quality of surface water and that near the bottom. No material difference was found, and therefore the results of examinations of surface samples are omitted from this report.

In examination of the bottom-water samples, fermentation tests were made precisely as in the examination of oysters, using a total of 15 tubes for each sample. In the early months of the work, the amounts of water tested were 10 cc, 1 cc, and 0.1 cc, five tubes in each amount. It was found, however, that the 10-cc portions were almost uniformly positive. Hence after January 29, 1928, examinations were made in portions of 1 cc, 0.1 cc, and 0.01 cc, precisely as in the examination of oysters.

Examinations of the shell liquor of oysters were made strictly in accordance with the Standard Methods of the American Public Health Association, and all positive results in fermentation tubes, whether from water or from shell liquor, were confirmed by streaking on Endo plates and transfer to a second fermentation tube.

In addition to the regular standard examination of shell liquor, a series of parallel examinations was made of some samples to determine the bacteriological content of oyster meats. After draining away the oyster liquor for sampling in the regular way, the oyster meats were transferred to sterile Petri dishes, where they were cut into small pieces with a sterile knife. Enough cut-up material was transferred to a wide-mouth sampling bottle containing 200 cc sterile salt solution to bring the total volume to 400 cc, as nearly as possible without leaving part of an oyster out of the sample. The examination was then made in accordance with the Standard Methods for the examination of shucked oysters.

After February 3, the following procedure, which was much simpler and quicker, was adopted: After draining away the shell liquor for the regular examination, the adductor muscle was cut at each valve, permitting the oyster meat to slide from the valves into a wide-mouth sampling bottle containing 200 cc of sterile 2 percent salt solution. Whole meats were added to bring the total volume as close to 400 cc as possible. About a tablespoonful of sterilized bird shot was added, the glass stopper replaced on the bottle, and the bottle shaken until an emulsion was obtained. This agitation resulted in cutting out the stomach and intestinal tract, together with the softer parts of the oyster, and diffusing their contents through the solution from which the liquid quantities were taken for examination. The examination was then made in accordance with Standard Methods for examination of shucked oysters. While the results of these analyses are presented in the accompanying tables, a discussion of the findings as compared with standard examinations of shell liquor is deferred to some future time.

In the tabulations which follow, the results of both water and oyster examinations are expressed primarily in terms of the standard score set up by the American Public Health Association in its Standard Methods for Examination of Shellfish.[1] Parallel columns of the same tables, or separate tables, give the same results expressed in terms of "most probable numbers of *coli-aerogenes* per 100 cc" (referred to hereafter as MPN) as derived from McCrady's "Tables for rapid interpretation of fermentation tube tests."[2] Numbers calculated in this way correspond roughly to the *coli-aerogenes* index obtained when the standard score is multiplied by 20. The correspondence between this index and the MPN is, however, only approximate, because the ratio of the MPN to the score varies with different score values; and, moreover, the several combinations which give the same score may give quite different MPN'S. For instance, the *coli-aerogenes* index corresponding to a score of 14 is

[1] Report of Committee on Standard Methods for the Bacteriological Examination of Shellfish, Am. Jour of Public Health, July 1922.

[2] Tables for rapid interpretation of fermentation tube results. By M. H McCrady. The Public Health Journal (Canadian). vol 9, May 1918.

280 (=score×20). There are, however, a number of different combinations of positive and negative fermentation tubes which give a score of 14; and considering only the combinations actually encountered in the examinations here recorded in the score 14 range, the MPN's varied from 170 to 350, the most frequent value being 350.

The variable relationship between the standard score and the MPN when both are calculated from the same fermentation tests is shown in detail in table A of the Appendix, which shows for each theoretically possible combination of positive and negative results in a set of 15 fermentation tubes (1) the resulting standard score and (2) the corresponding MPN. The scope of theoretically possible MPN values corresponding to each value of the score as derived from this table is shown graphically in figure 1. It may be noted that of the 216 possible combinations included in table A, only 37 were actually observed in this series of examinations, which comprises a total of 565 samples. Hence, for certain scores, the ranges of MPN values actually observed in this work were considerably narrower than is theoretically possible. The MPN ranges actually encountered in this work are shown in the summary below, and are included in the solid portions of the bars of figure 1. Ten percent of the water samples gave results which were "inconsistent"; i. e., one or more of the high dilution tubes were positive, although not all 5 of the next lower dilution tubes were positive—for example, 5–4–1 instead of 5-5–0. Among the oyster results, 17 percent were "inconsistent" figures.

The relationship between standard score and MPN's of *coli-aerogenes* per 100 cc, as actually observed in the water and oyster examinations here presented, is as shown below. The maximum figures were encountered much more frequently than the minimum figures.

Score	MPN as observed		Coli-aerogenes index (=score×20)
	Minimum	Maximum	
0	0	Less than 20	0
1	20	20	20
2	40	50	40
3	70	80	60
4	110	130	80
5	140	250	100
14	170	350	280
23	250	500	460
32	350	900	640
41	400	1,600	820
50	1,400	2,500	1,000
140	2,500	3,500	2,800
230	3,000	6,000	4,600
320	9,000	9,000	6,400
410	16,000	16,000	8,200
500+	18,000	18,000+	10,000

It is unnecessary here to enter into any general discussion of the methods of expressing results in scores or in MPN's. Both expressions are included in this study because the score is in general use for

be contributed by the shipping on the bay. Station H, on account of its proximity to the ship channel, is probably exposed to this contamination more than any of the other stations.

In addition to these sources of pollution, there are the more distant sources on the Seekonk River, on which are located East Providence and Pawtucket, and, further upstream, pollution from cities on the Blackstone. A total population in excess of 680,000 resides on the watershed above the point where the Providence sewer discharges. A large part of the sewage, but not all, receives some treatment before it reaches the water courses.

All this pollution is rather highly diluted in Narragansett Bay by admixture with salt water. The tides carry it back and forth in a shuttlelike motion as it slowly moves out into the bay. Stations A, B, H, and G, being closer in, are naturally more affected by this contamination than the more distant stations. On the other hand, Station F is exposed to the sewage from the city of Warren, about 2 miles away. This sewage is settled and chlorinated, but not completely sterilized. Stations C, D, and E are affected in a lesser degree, but are not free from the effects of the general contamination noticeable in the area.

All of the stations except A are in areas from which the marketing of oysters has been permitted in cold weather.

PRESENTATION OF DATA

Table B (see Appendix) records all the examinations made, grouped according to stations in chronological order. It shows, for each sample, the date of collection, water temperature, and the results of the bacteriological examination expressed in terms of standard score and most probable number of *coli-aerogenes* per 100 cc.

The examinations extend over a period of 6 months, from November 21, 1927, to May 21, 1928. During this time water temperatures ranged from $-2.5°$ C. to $14.4°$ C.; but for 5 consecutive months, December to April, inclusive, the temperature was consistently under 10°, and from January 4 to the latter part of March it was constantly under 5°.

The total number of examinations included in this table is 565, comprising the following examinations: Oyster liquor, 281; oyster meats, 89; and water samples, 195. There are 182 entries giving results of the examination of standard oyster samples and of corresponding water samples taken at the same time and place. In a few instances the results recorded for examination of oyster samples are the means of two oyster samples taken at the same time and place at which a single water sample was taken. This, however, is exceptional.

QUALITY OF WATER

The 8 principal sampling stations fall into 2 groups, separated on a definite geographic basis, namely, (1) in the upper bay, stations A, B, H, and G, and (2) in the lower bay, stations C, D, E, and F.

The results of bacteriological examination of the samples taken at both upper and lower stations are shown in tables 1 and 2, results in the former being expressed in terms of the standard score and in the latter in terms of MPN.

TABLE 1.—*Summary of results of examinations of water samples in "upper" and "lower" station groups*

Score	Number of samples giving indicated score at each station									
	Upper stations					Lower stations				
	A	B	G	H	Total, A, B, G, H	C	D	E	F	Total, C, D, E, F
0	0	1		1	2	5	2	0	1	8
1	1	1		1	3	3	3	2	4	12
2	0	0		2	2	1	4	0	5	10
3	3	0	2	1	6	2	0	3	2	7
4	3	1	2	6	12	2	1	1	6	10
5	5	2	2	8	17	1	3	1	5	10
14	4	4	3	8	19	5	3	1	1	10
23	1	0	0	6	7	3	0	3	2	8
32	2	0	6	4	12	1	1	1	2	5
41	2	1	1	5	9	0				
50	2			5	7	1			1	2
140			1	2	3					
230										
320										
410										
500									1	1
Total	23	10	17	49	99	24	17	12	30	83
Medians	5	9.5	14	14	14	4	2	4.5	4	4
Percentage under 3					7					36
Percentage over 5					58					32

TABLE 2.—*Summary of results of examinations of water samples in "upper" and "lower" station groups*

MPN per 100 cc	Number of samples showing indicated MPN									
	Upper stations					Lower stations				
	A	B	G	H	Total, A, B, G, H	C	D	E	F	Total, C, D, E, F
20 and under	1	1		2	4	7	5	2	4	18
21-40	0	1		2	3	1			1	2
41-80	3		2	2	7	3	4	3	7	17
81-160	3	1	2	5	11	2	1	1	6	10
161-320	4	2	4	8	18	2	4	1	5	12
321-640	6	4	1	14	25	6	2	4	3	15
641-1280	2		6	4	12	2	1	1	2	6
1281-2560	4	1	1	9	15	1			1	2
2561-5120			1	3	4					
5121-10240										
10241-20480									1	1
Total	23	10	17	49	99	24	17	12	30	83
Medians	350	350	350	350	350	130	50	190	130	130
Percentage under 81					8					36
Percentage over 250					55					29

It will be seen from tables 1 and 2 that the 4 upper stations as a group show materially higher pollution than the 4 lower stations. Considering scores under 3, or MPN under 81, as indicating fairly clean water, and scores over 5, or MPN in excess of 250, as indicative of rather gross pollution, it is noted that the water at the upper stations was usually found quite heavily polluted, while that at the lower stations was of distinctly better quality: through still subject at times to high pollution.

For purposes of studying bacteriological results in relation to temperature and season, the 6 months during which samples were taken are subdivided into 3 periods, namely, (1) November and December,[3] temperatures ranging over 5°; (2) January 4 to March 25, temperatures constantly under 5°; and (3) March 27 to May 21, temperatures over 5°. The first and third of these periods are similar with respect to temperature range but different in that the first represents a period of falling temperature which has been preceded by a warm season while the third is a period of rising temperature following the winter season.

With respect to seasonal variation, both upper and lower stations show their highest pollution in the late fall, prior to December 12, while no material difference is shown between the winter period, January-March, and the spring period, March 26–May 21. Both periods show a better quality of water than the fall period. For all stations the median water scores for these periods are 23, 5, and 5, respectively.

RELATION OF WATER POLLUTION TO OYSTER POLLUTION

Table 3 presents, in the form of a correlation table, the scores found in 182 pairs of examinations, each pair including an oyster sample and a water sample collected at the same time and from the same place. Table 4 presents the results of the same examinations expressed in terms of MPN.

Referring to table 3 and figure 3, taking the whole season into consideration, it is seen that the water scores fall into a fairly symmetrical distribution, with a mode in the range of 5 to 14, while the distribution of oyster scores is highly skew, showing the greatest number of observations in the ranges 0 and 1. That is, the table shows what has long been recognized as a general fact, that oyster scores in cold weather are usually lower than corresponding water scores. The oyster scores, however, are more variable, so that values over 50 are encountered 11 times in oyster examinations as against 4 times in water samples. As the result of these occasional excessive high values, the arithmetic mean of the oyster scores is greatly dis-

[3] No samples were taken between Dec. 12 and Jan. 4.

torted, and is greater than the mean water score, notwithstanding that as a rule the oyster scores are lower. Omitting only the positive indeterminate scores (500+), the average oyster score is 15.2 and the

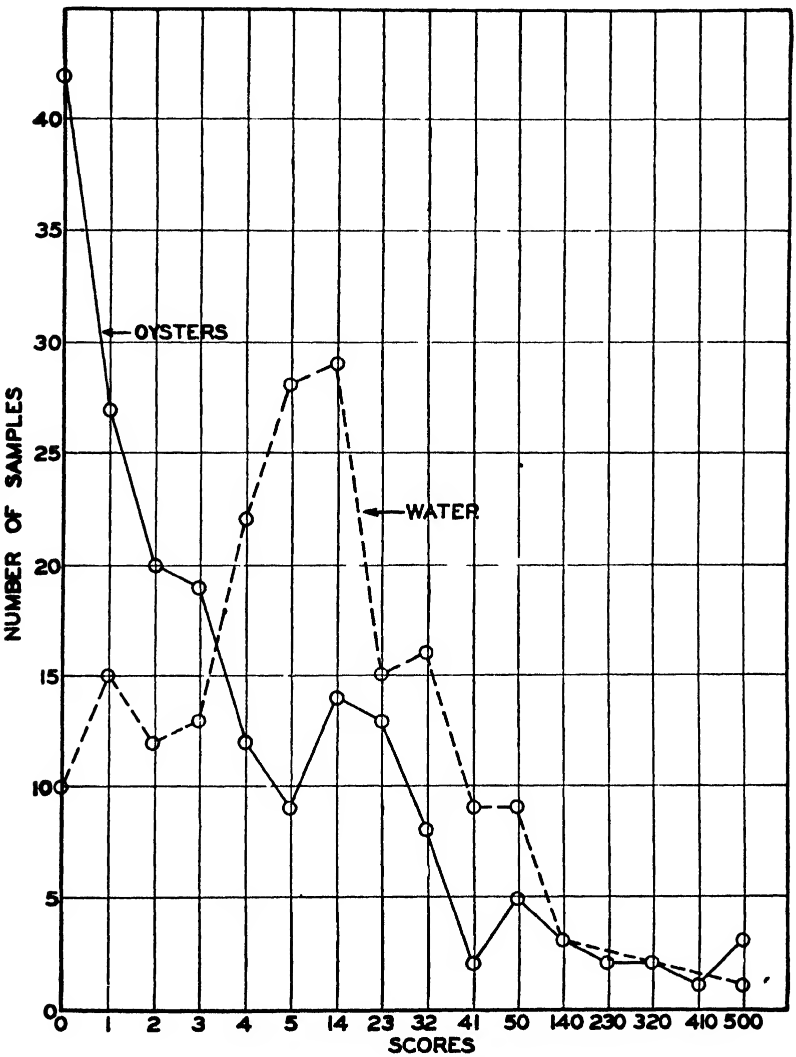


FIGURE 3.—Frequency distribution of water and oyster scores

average water score 15.5. In dealing with results such as these, however, a comparison of medians or of geometric means is more instructive. The median water and oyster scores for the whole series are 5 and 3, respectively.

Table 3.—*Correlation table, water and oyster scores* [1]—*Total of 182 fall, winter, and spring samples*

[Coefficient of correlation = +.271±.046]

OYSTER SCORES

WATER SCORES	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	Total
0	2	5	2	1													10
1	6	2	2	2								1				2	15
2	8	2	1	1													12
3	2	4	2	1	1		2		1								13
4	5	2	5		2	2	2	3					1				22
5	7	4	2	4	2	2	3	2			1	1					28
14	5	4	3	4	1	2	4	1	1	1	1	1		1			20
23	3	1		3		1	1	1	2	1	1		1				15
32	3	1		1	1		1	4	2		1			1		1	16
41			1	1	2			2	2						1		9
50	1	1	2	1	1	2	1										[illegible]
140					2						1						3
230																	
320																	
410																	
500+		1															1
Total	42	27	20	19	12	9	14	13	8	2	5	3	2	2	1	8	182

[1] Average scores such as 27 5 are regarded as falling into the *next lower* group, 23, rather than into the next higher.

Table 4.—*Correlation table, water and oyster MPN's—Total of 182 fall, winter, and spring samples*

[Coefficient of correlation = + 256± 069]

OYSTER MPN'S

	Under 20	20-39	40-79	80-159	160-319	320-639	640-1,279	1,280-2,559	2,560-5,119	5,120-10,239	10,240-18,000+	Total
Under 20	2	5	2	1								10
20-39	6	2	2	2					1		2	15
40-79	8	2	1	1						1		13
80-159	7	5	7	4	4	7						34
160-319	7	4	2	6	4	4	1	2	1			31
320-639	8	5	4	7	3	6	1	3	1	2		40
640-1,279	3	2		2	1	4	2	1		1	1	17
1,280-2,559	1	1	3	5	3	2	2				1	18
2,560-5,119				2				1				3
5,120-10,239												
10,240-18,000+		1										1
Total	42	27	21	30	15	23	6	7	3	4	4	182

As regards correspondence between water and oyster scores, inspection of table 3 and figure 3 shows a general tendency for oyster scores to increase as water scores increase, but with numerous instances of irregularity where high oyster scores correspond to low water scores and vice versa. The coefficient of correlation between oyster and water scores as derived from this table is +0.271 ±0.046. In calculating this coefficient, the class interval represented by the difference between any two successive scores in the standard scale is taken as unity Thus, the same weight is given to the difference between scores of 1 and 2 as to the difference between scores of 5 and 14, or 50 and 140.[4]

This coefficient is significant in relation to its probable error, but of a rather low order, indicating what has previously been observed by inspection of table 3 and figure 3, namely, that water scores and oyster scores tend to some degree of correspondence when viewed broadly, but that, considered in detail, this correspondence is by no means close. A fact indicative of the rough general correspondence underlying the irregularity in individual results is that for all water samples scoring under 14 the mean oyster score is 19.6, and for all water samples scoring 14 or over, the mean corresponding oyster score is 34 8. In terms of MPN's, for waters having an MPN of 250 or less the mean oyster MPN is 637, while for waters having an MPN of over 250, the mean oyster MPN is 1,260. Also, by arranging the 182 pairs of water and oyster MPN's in order of water MPN magnitude in 4 approximately equal groups, and comparing the medians in each group, we find the following:

Number of samples	MPN median	
	Water	Oyster
38	20	20
42	130	50
58	350	80
44	1,600	225
182	250	75

[4] For advice in regard to use of this procedure and for checking the calculation of the correlation coefficient, the writer is indebted to Dr Lowell J Reed, professor of biometry and vital statistics, the Johns Hopkins University School of Hygiene and Public Health

These figures show that, under the conditions here operating, as the water contamination increases, oyster contamination also increases, but not at the same rate.[5]

In table 4 the data which have been presented in table 3 in terms of standard scores are restated in terms of most probable numbers of *coli-aerogenes* per 100 cc (MPN), grouped into geometric frequency distributions. The general picture is similar to that presented in table 3, and the coefficient of correlation is of the same order, its value being $+0.256 \pm 0.069$. In this calculation, as in that based on table 3, the class interval between successive groups in the geometric distribution has been taken as unity.[6]

It will be noted from tables 3 and 4 that water samples showed greater contamination than corresponding oyster samples in about two-thirds of the observations, and less contamination than oysters in about one-fourth of the observations. Occasionally, however, oyster samples show contamination *very much* greater than the water samples. Comparison of arithmetic means may, therefore, be misleading, due to the distortion by occasional excessively high oyster scores.

This relationship between the water and oyster analyses contained herein may also be summarized as follows:[7]

	Score	MPN
	Percent	*Percent*
Water samples showing greater contamination than oyster samples	64	68
Water samples showing equal contamination to oyster samples	9	5
Water samples showing less contamination than oyster samples	27	27
	100	100

[5] In a group of samples reported to us by the Rhode Island Shellfish Commission during the winter of 1929–30, the following results are obtained when similarly grouped:

Number of samples	Median score: Water	Median score: Oyster
97	0	0
97	1	1
97	3	3
96	23	4
387		

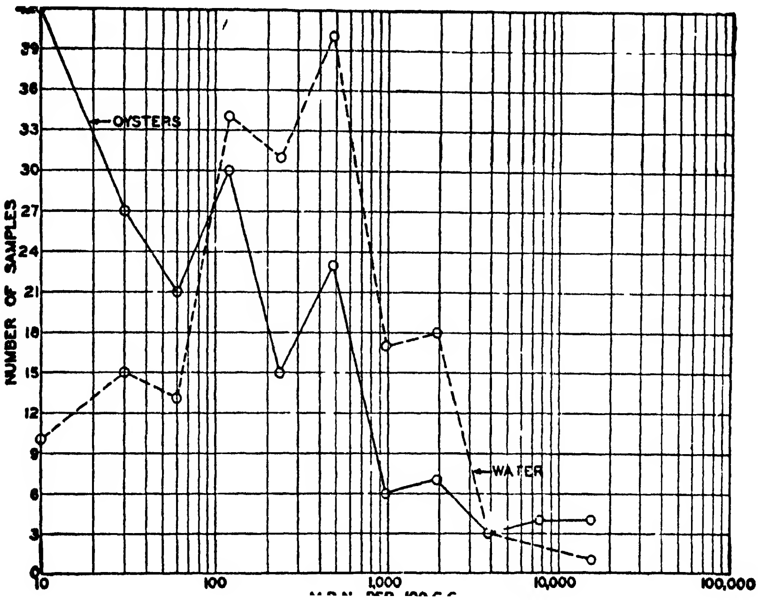
[6] Acknowledgment is again made to Dr. Reed for advice as to procedure.

[7] The results obtained by the Rhode Island Shellfish Commission in the winter of 1929–30 give:

	Percent
Water samples showing greater contamination than oyster samples	36.4
Water samples showing equal contamination to oyster samples	19.9
Water samples showing less contamination than oyster samples	43.7
	100

EFFECT OF TEMPERATURE ON RELATION BETWEEN OYSTER SCORE AND WATER SCORE

In table 3 the seasonal effects on the relation between water contamination and oyster contamination are obscured. They become more apparent in studying the fall, winter, and spring groupings



separately, as shown in tables 5 to 10, inclusive. It will be noted by inspection of tables 5 and 6 (fall results) that a rather high degree of correlation between water and oyster samples exists in this temperature range and season. This close correspondence disappears as the effects of cold weather are felt, as shown in tables 7 and 8 (winter results) and 9 and 10 (spring results).

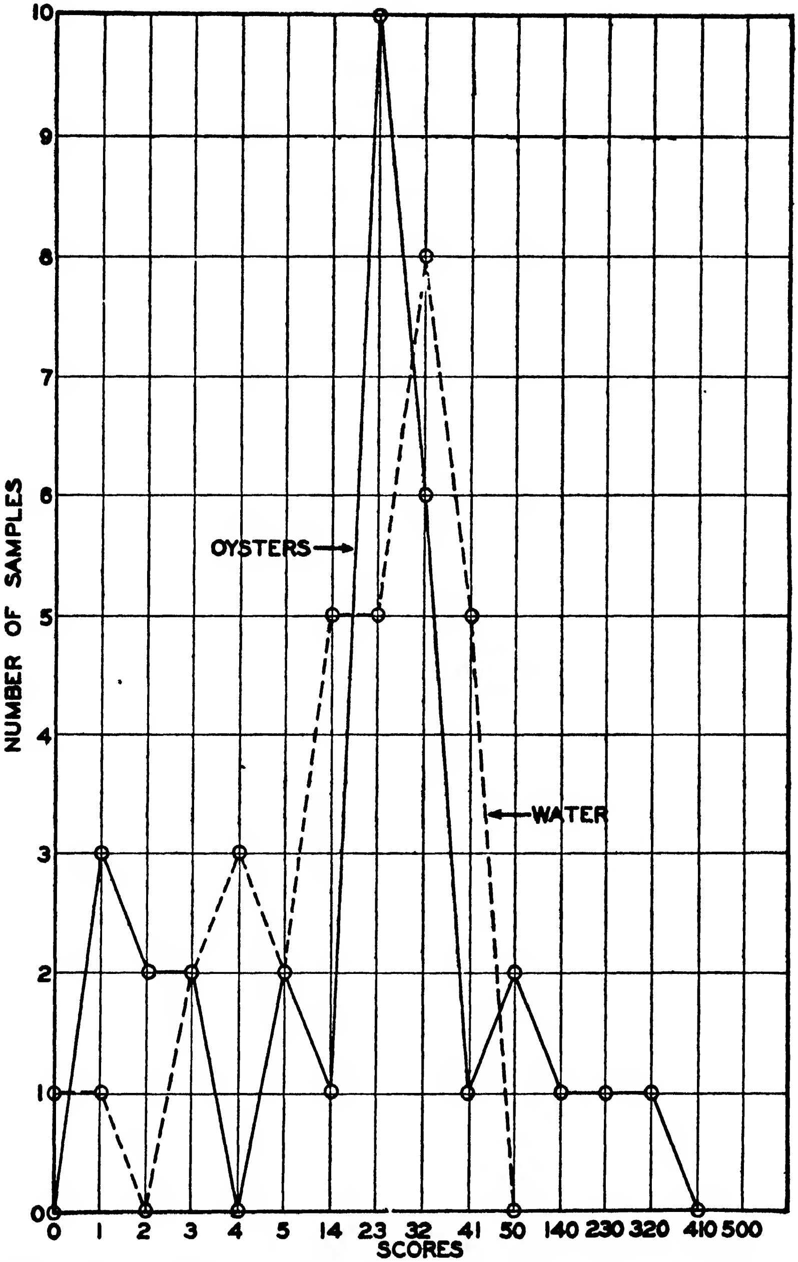


FIGURE 5.—Frequency distribution of water and oyster scores in the fall. Temperature of water above 5° C.

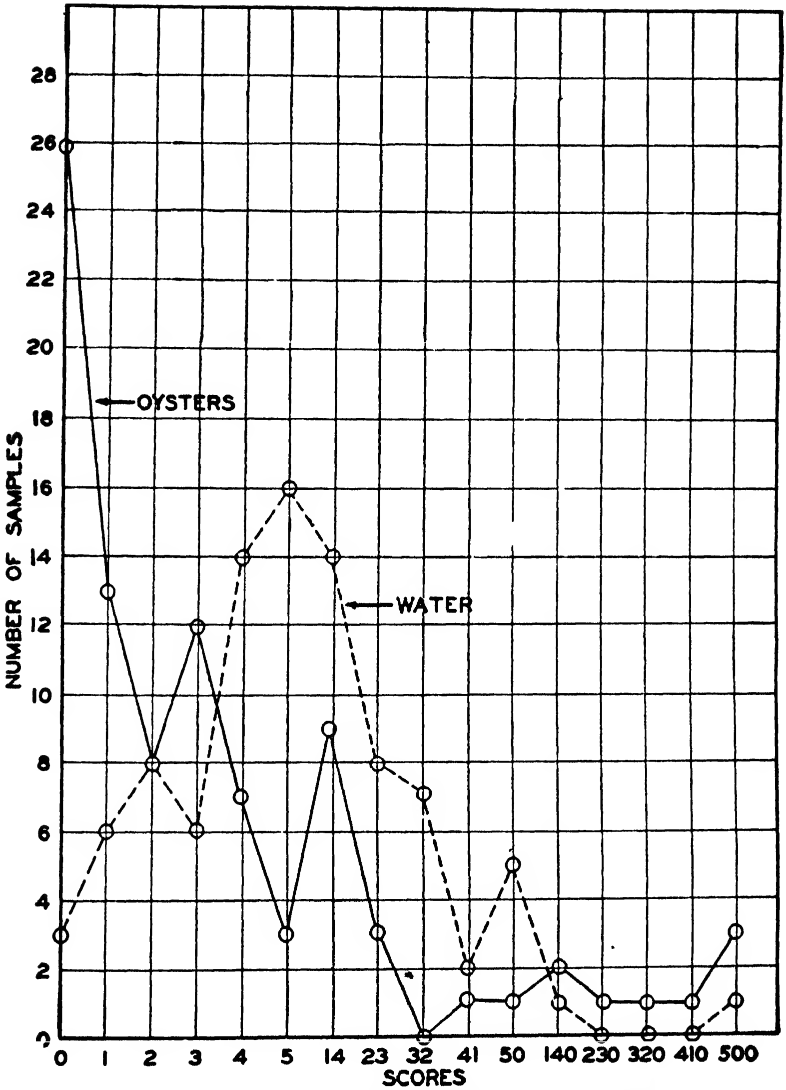


FIGURE 6.—Frequency distribution of water and oyster scores in the winter. Temperature of water below 5° C.

The difference is shown strikingly by comparing figures 5 and 6.

TABLE 5.—*Correlation table, water and oyster scores.—Fall samples (temperature above 5° C.)*

OYSTER SCORES

WATER SCORES	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	Total
0			1														1
1				1													1
2																	
3		1					1										2
4		1	1					1									3
5											1	1					2
11		1				2		1	1								5
23								1	2	1			1				5
32								4	2		1			1			8
41				1				3	1								5
50																	
140																	
230																	
320																	
410																	
500+																	
Total		3	2	2	-	2	1	10	6	1	2	1	1	1	-	- -	32

TABLE 6.—*Correlation table, water and oyster MPN's: —Fall samples (temperature above 5° C.)*

OYSTER MPN's

WATER MPN's	Under 20	20-39	40-79	80-159	160-319	320-639	640-1,279	1,280-2,559	2,560-5,119	5,120-10,239	10,240-18,000+	Total
Under 20			1									1
20-39				1								1
40-79												
80-159		2	1		1	1						5
160-319					1		1	1	1			4
320-639		1			1	3	2			1		8
640-1,279						4	2	1		1		8
1,280-2,559				1	1	1	2					5
2,560-5,119												
5,120-10,239												
10,240-18,000+												
Total	......	3	2	2	4	9	7	2	1	2	......	32

Table 7.—*Correlation table, water and oyster scores—Winter samples (temperatur 5° C., or lower)*

OYSTER SCORES

WATER SCORES	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	Total
0	1	1		1													3
1	2	1										1				2	6
2	5	1	1	1													8
3	2	2		1			1										6
4	5		1		2	1	2	2					1				14
5	4	3	1	3	2	1	1	1									16
14	2	1	2	2	1		3			1		1		1			14
23	2	1		3			1				1						8
32	2	1	1		1		1									1	7
41			1												1		2
50	1	1	1	1		1											5
140					1												1
230																	
320																	
410																	
500+		1															1
Total	26	13	8	12	7	3	9	3		1	1	2	1	1	1	3	91

Table 8.—*Correlation table, water and oyster MPN's—Winter samples (temperature 5° C., or lower)*

OYSTER MPN's

WATER MPN's	Under 20	20–39	40–79	80–159	160–319	320–639	640–1,279	1,280–2,559	2,560–5,119	5,120–10,239	10,240–18,000+	Total
Under 20	1	1		1								3
20–39	2	1							1		2	6
40–79	5	1	1	1						1		9
80–159	7	2	1	3	1	5						19
160–319	4	3	2	4	2	2		1				18
320–639	4	2	3	5		3		1	1	1		20
640–1,279	2	2		1	1						1	7
1,280–2,559	1	1	2	1	1						1	7
2,560–5,119				1								1
5,120–10,239												
10,240–18,000+		1										1
Total	26	14	9	17	5	10		2	2	2	4	91

Table 9.—*Correlation table, oyster and water scores—Spring samples (temperature above 5° C.)*

OYSTER SCORES

Water scores	0	1	2	3	4	5	14	23	32	41	50	140	230	320	410	500+	Total
0	1	4	1														6
1	4	1	2	1													8
2	3	1															4
3		1	2		1				1								5
4		1	3			1											5
		1	1	1		1	1	1									9
14	3	2	1	2			1				1						10
23	1					1											2
32	1			1													2
41					2												2
50			1		1	1	1										4
140					1						1						2
230																	
320																	
410																	
500+																	
Total	16	11	11	5	5	4	3	1	1		2						59

Table 10.—*Correlation table, oyster and water MPN's—Spring samples (temperature above 5° C.)*

OYSTER MPN'S

Water MPN's	Under 20	20–39	40–79	80–159	160–319	320–639	640–1,279	1,280–2,559	2,560–5,119	5,120–10,239	10,240–18,000+	Total
Under 20	1	4	1									6
20–39	4	1	2	1								8
40–79	3	1										4
80–159		2	5	1	1	1						10
160–319	3	1	1	1	1	2						9
320–639	4	2	1	2	2			1				12
640–1,279	1			1								2
1,280–2,559			1	3	1	1						6
2,560–5,119				1				1				2
5,120–10,239												
10,240–18,000+												
Total	16	11	11	10	5	4		2				59

The influence of temperature on the relation between bacterial contamination of oysters and that of overlying water is indicated in table 11, which shows for each temperature range the number of instances in which the oyster liquor showed contamination, less than, equal to, or greater than that of the corresponding water sample.

Table 11.—*Frequency of occurrence of oyster MPN (1) less than, (2) equal to, and (3) greater than MPN of corresponding water samples in various temperature ranges*

Temperature, ° C.	Number of pairs	Number of samples showing oyster MPN			Percent oyster samples less than water samples
		Less than water MPN	Greater than water MPN	Same as water MPN	
0 and under	15	12	2	1	87
0.1 to 1	29	24	4	1	86
1.1 to 2	16	10	3	3	81
2.1 to 3	23	15	7	1	70
3.1 to 4	10	5	5	0	50
4.1 to 5	9	5	4	0	55
5.1 to 6	16	11	4	1	76
6.1 to 7	7	5	1	1	86
7.1 to 8	5	5	0	0	100
8.1 to 9	8	3	5	0	37
9.1 to 10	22	13	8	1	64
10.1 to 11	5	5	0	0	100
11.1 to 12	14	10	3	1	79
12.1 to 14	3	[illegible]	1	0	67
Total	182				

In most of the temperature ranges the number of observations is small and there is a good deal of irregularity in the relationship of oyster to water samples. When the observations are grouped in greater temperature ranges, the relationship becomes more regular, as shown in the following:

Temperature range	Number of observations [1]	Percent of oyster samples showing MPN coli aerogenes less than water samples
2° C. and under	55	83.5
2.1°–7°	62	66
7.1°–14°	55	65

[1] Exclusive of pairs in which water sample and oyster sample gave identical results.

According to the above summary, the tendency of the oyster score to be less than the water score is most marked at temperatures under 2° C.

SUMMARY

1. From a study of water samples in shellfish growing areas of Narragansett Bay, it is apparent that the quality of the water is better in winter and early spring than it is in the late fall.

2. Just as the quality of the water is better in winter and spring than in the fall, so also does the quality of the oysters tend to improve. This tendency is perhaps more marked in the case of the oysters than in the case of the water. It should be noted, however, that the oyster results are likely to be more erratic in that excessively high scores are likely to occur rather frequently along with low scores.

3. There is a general tendency in northern oyster-growing areas during the marketing season for oyster scores to increase as water scores increase, and vice versa, when viewed broadly. In individual comparisons, differences may be extreme.

4. A marked improvement in the quality of oysters occurs within about 1° C. of the freezing point. This improvement was much more consistent at these lower ranges of temperature than at other cold-weather ranges.

ACKNOWLEDGMENTS

Acknowledgment is made of valuable assistance rendered by Dr. W. H. Frost, of the Johns Hopkins School of Public Health and Hygiene, and to Asst. Surg. Gen. C. E. Waller and Sanitary Engineer R. E. Tarbett, of the United States Public Health Service.

Appendix

TABLE A.—*Combinations of fermentation tubes results from which each value of the standard score may be derived, and the most probable number (of coli-aerogenes per 100 cc) corresponding to each combination when tests are made in five tubes of each indicated amount*

Score and index (=score×20)	Number of positives in each amount			MPN	Score and index (=score×20)	Number of positives in each amount			MPN
	1 cc	0.1 cc	0.01 cc			1 cc	0.1 cc	0.01 cc	
0	0	0	0	[1] 0-20		4	0	0	[1] 130
	1	0	0	[1] 20		3	1	0	[1] 110
1 (index=20)	0	1	0	[1] 20		3	0	1	[1] 110
	0	0	1	20		2	2	0	90
	2	0	0	[1] 50		2	0	2	90
	1	1	0	[1] 40		2	1	1	90
	1	0	1	40		1	3	0	80
2 (index=40)	0	2	0	40	4 (index=80)	1	0	3	80
	0	1	1	40		1	2	1	80
	0	0	2	40		1	1	2	80
	3	0	0	[1] 80		0	4	0	80
	2	1	0	[1] 70		0	3	1	70
	2	0	1	60		0	2	2	80
	1	2	0	60		0	1	3	70
3 (index=60)	1	1	1	60		0	0	4	70
	1	0	2	60		5	0	0	[1] 250
	0	3	0	60		4	1	0	[1] 170
	0	2	1	60	5 (index=100)	4	0	1	170
	0	1	2	60		3	2	0	140
	0	0	3	60		3	1	1	140

[1] Indicates combinations actually observed.

Table A.—*Combinations of fermentation tubes results from which each value of the standard score may be derived, and the most probable number (of coli-aerogenes per 100 cc) corresponding to each combination when tests are made in five tubes of each indicated amount*—Continued

Score and index (=score×20)	Number of positives in each amount			MPN
	1 cc	0.1 cc	0.01 cc	
5 (index=100)	3	0	2	[1] 140
	2	3	0	120
	2	2	1	120
	2	1	2	120
	2	0	3	120
	1	4	0	110
	1	3	1	100
	1	2	3	100
	1	1	3	100
	1	0	4	100
	0	0	0	100
	0	4	1	100
	0	3	2	90
	0	2	3	90
	0	1	4	90
	0	0	5	90
14 (index=280)	5	1	0	[1] 350
	5	0	1	300
	4	2	0	[1] 200
	4	1	1	200
	4	0	2	200
	3	3	0	170
	3	2	1	170
	3	1	2	170
	3	0	3	160
	2	4	0	140
	2	3	1	140
	2	2	2	140
	2	1	3	150
	2	0	4	140
	1	5	0	130
	1	4	1	130
	1	3	2	120
	1	2	3	120
	1	1	4	120
	1	0	5	120
	0	5	1	120
	0	4	2	120
	0	3	3	110
	0	2	4	110
	0	1	5	110
23 (index=460)	5	2	0	[1] 500
	5	1	1	[1] 450
	5	0	2	[1] 200
	4	3	0	[1] 250
	4	2	1	[1] 250
	4	1	2	250
	4	0	3	250
	3	4	0	200
	3	3	1	200
	3	2	2	200
	3	1	3	200
	3	0	4	200
	2	5	0	170
	2	4	1	170
	2	3	2	170
	2	2	3	170
	2	1	4	170
	2	0	5	160
	1	5	1	150
	1	4	2	150
	1	3	3	150
	1	2	4	150
	1	1	5	140
	0	5	2	140
	0	4	3	130
	0	3	4	130
	0	2	5	130
32 (index=640)	5	3	0	[1] 800
	5	2	1	[1] 700
	5	1	2	600
	5	0	3	600
	4	4	0	[1] 350
32 (index=640)	4	3	1	300
	4	2	2	300
	4	1	3	300
	4	0	4	300
	3	5	0	250
	3	4	1	250
	3	3	2	250
	3	2	3	250
	3	1	4	250
	3	0	5	250
	2	5	1	200
	2	4	2	200
	2	3	3	190
	2	2	4	200
	2	1	5	190
	1	5	2	170
	1	4	3	170
	1	3	4	170
	1	2	5	170
	0	5	3	150
	0	4	4	150
	0	3	5	150
41 (index=820)	5	4	0	[1] 1,300
	5	3	1	[1] 1,100
	5	2	2	950
	5	1	3	850
	5	0	4	750
	4	5	0	400
	4	4	1	400
	4	3	2	400
	4	2	3	360
	4	1	4	350
	4	0	5	350
	3	5	1	300
	3	4	2	300
	3	3	3	300
	3	2	4	300
	3	1	5	300
	2	5	2	230
	2	4	3	250
	2	3	4	230
	2	2	5	250
	1	5	3	200
	1	4	4	200
	1	3	5	190
	0	5	4	170
	0	4	5	170
50 (index=1,000)	5	5	0	[1] 2,500
	5	4	1	[1] 1,700
	5	3	2	1,400
	5	2	3	1,200
	5	1	4	1,100
	5	0	5	900
	4	5	1	450
	4	4	2	450
	4	3	3	450
	4	2	4	420
	4	1	5	400
	3	5	2	330
	3	4	3	330
	3	3	4	350
	3	2	5	350
	2	5	3	260
	2	4	4	280
	2	3	5	280
	1	5	4	230
	1	4	5	250
	0	5	5	190
140 (index=2,800)	5	5	1	[1] 3,500
	5	4	2	[1] 2,500
	5	3	3	1,750
	5	2	4	1,500
	5	1	5	1,200

[1] Indicates combinations actually observed.

Table A.—*Combinations of fermentation tubes results from which each value of the standard score may be derived, and the most probable number (of coli-aerogenes per 100 cc) corresponding to each combination when tests are made in five tubes of each indicated amount*—Continued

Score and index (=score×20)	Number of positives in each amount: 1 cc	0.1 cc	0.01 cc	MPN	Score and index (=score×20)	Number of positives in each amount: 1 cc	0.1 cc	0.01 cc	MPN
140 (index=2,800)	4	5	2	550	230 (index=4,600)	4	4	4	600
	4	4	3	500		4	3	5	600
	4	3	4	500		3	5	4	400
	4	2	5	500		3	4	5	400
	3	5	3	360		2	5	5	350
	3	4	4	360	320 (index=6,400)	5	5	3	[1] 9,000
	3	3	5	400		5	4	4	3,500
	2	5	4	300		5	3	5	2,500
	2	4	5	300		4	5	4	700
	1	5	5	260		4	4	5	700
230 (index)=4,600	5	5	2	[1] 6,000		3	5	5	450
	5	4	3	[1] 3,000	410 (index=8,200)	5	5	4	[1] 16,000
	5	3	4	2,000		5	4	5	4,500
	5	2	5	1,750					
	4	5	3	650	500+ (index=10,000+)	5	5	5	[1] 18,000+

[1] Indicates combinations actually observed.

SUMMARY

Tubes	Score	Number MPN values: Theoretically possible	Actually encountered	Tubes	Score	Number MPN values: Theoretically possible	Actually encountered
0	0	1	1	8	32	27	3
1	1	3	2	9	41	25	3
2	2	6	2	10	50	21	2
3	3	10	2	11	140	15	2
4	4	15	3	12	230	10	2
5	5	21	3	13	320	6	1
6	14	25	3	14	410	3	1
7	23	27	4	15	500+	1	1

Table B.—*Water and oyster examinations arranged chronologically by stations*

STATION A—1,500 YARDS NORTH OF CONIMICUT POINT

Date	Temperature (water) ° C.	Oyster results: Liquor		Oyster results: Meats		Water results		
		Score	MPN	Score	MPN	Score	MPN	Density
Nov. 21, 1927	10	23	250			41	1,600	1.019
Jan. 5, 1928	2	3	70					
Jan. 9, 1928	2.5	500+	18,000+			41	1,600	18
Jan. 9, 1928	2.5	410	16,000					18
Jan. 10, 1928	3	140	3,500			1	20	19
Jan. 11, 1928	3	5	250					18
Jan. 12, 1928	3	4	130					
Jan. 16, 1928	2	14	350			14	350	20
Jan. 17, 1928	3.5	0						19
Jan. 18, 1928	4	410	16,000					18
Jan. 19, 1928	2.5	14	200					18
Jan. 23, 1928	1.5	1	20					
Jan. 24, 1928	0	1	20					18
Jan. 25, 1928	3	0						19
Jan. 26, 1928	2	0						19
Jan. 30, 1928	−0.5	23	500					19
Jan. 31, 1928	−0.5	2	50					20
Feb. 1, 1928	−0.5	1	20					16
Feb. 2, 1928	1	1	20					20

Table B.—*Water and oyster examinations arranged chronologically by stations*—Continued

STATION A—1,500 YARDS NORTH OF CONIMICUT POINT—Continued

Date	Temperature (water) ° C.	Oyster results				Water results		
		Liquor		Meats				
		Score	MPN	Score	MPN	Score	MPN	Density
Feb. 6, 1928	0	0	----	----	----	23	500	18
Feb. 7, 1928	0	4	110	----	----	4	130	19
Feb. 8, 1928	2	140	3,500	----	----	14	350	19
Feb. 13, 1928	1	3	80	----	----	50	2,500	20
Feb. 14, 1928	2	4	140	----	----	23	800	19
Feb. 15, 1928	2	3	80	----	----	3	80	20
Feb. 16, 1928	4	1	20	----	----	5	250	16
Feb. 20, 1928	2	0	----	0	----	3	80	21
Feb. 21, 1928	1	3	70	0	----	5	250	----
Feb. 22, 1928	0	1	20	0	----	5	250	18
Feb. 27, 1928	1	4	110	32	700	5	170	19
Feb. 28, 1928	1	0	----	0	----	4	130	18
Feb. 29, 1928	1	4	130	0	----	5	170	19
Mar. 1, 1928	2	0	----	0	----	32	800	18
Mar. 5, 1928	1	1	20	0	----	3	80	20
Mar. 6, 1928	0	2	50	3	80	14	350	20
Mar. 7, 1928	1	1	20	2	50	50	1,700	20
Mar. 8, 1928	1	0	----	1	20	14	350	20
Apr. 19, 1928	7	1	20	----	----	4	130	225

STATION B—2,000 YARDS SOUTH OF CONIMICUT POINT

Date	Temperature (water) ° C.	Liquor Score	Liquor MPN	Meats Score	Meats MPN	Water Score	Water MPN	Density
Nov. 23, 1927	10	140	3,500	----	----	5	250	1.019
Nov. 30, 1927	10	2	50	----	----	.1	2	20
Dec. 12, 1927	5	23	500	----	----	41	1,600	18
Jan. 4, 1928	1	2	50	----	----	14	350	19
Jan. 5, 1928	2	3	80	----	----	----	----	20
Jan. 9, 1928	2.5	5	250	----	----	----	----	18
Jan. 11, 1928	3	4	130	----	----	14	350	20
Jan. 12, 1928	3	3	80	----	----	14	350	----
Jan. 16, 1928	2	2	50	----	----	----	----	20
Jan. 17, 1928	3	2	50	----	----	----	----	19
Jan. 18, 1928	4	140	3,500	----	----	----	----	18
Jan. 19, 1928	2.5	5	250	----	----	----	----	18
Jan. 23, 1928	1.5	0	----	----	----	----	----	19
Jan. 25, 1928	3	0	----	----	----	1.4	35	19
Jan. 31, 1928	−0.5	1	20	----	----	----	----	18
Feb. 1, 1928	−0.5	1	20	----	----	----	----	16
Feb. 2, 1928	1	1	20	----	----	----	----	19
Apr. 10, 1928	6.5	0	----	1	20	5	250	20
Apr. 25, 1928	7.2	2	50	----	----	4	130	22
Apr. 25, 1928	8	0	----	----	----	14	350	19

STATION C—1,500 YARDS NORTHEAST OF ROCKY POINT

Date	Temperature (water) ° C.	Liquor Score	Liquor MPN	Meats Score	Meats MPN	Water Score	Water MPN	Density
Nov. 23, 1927	10	23	500	----	----	14	350	19
Nov. 23, 1927	10	41	1,300	----	----	23	600	19
Nov. 30, 1927	10	3	80	----	----	1	20	20
Nov. 30, 1927	10	2	50	----	----	4	130	20
Dec. 12, 1927	6	5	250	----	----	14	250	19
Jan. 4, 1928	1	50	2,500	----	----	23	500	19
Jan. 5, 1928	2	0	----	----	----	14	350	20
Jan. 5, 1928	2	32	800	----	----	----	----	----
Jan. 9, 1928	2.5	14	200	----	----	14	200	18
Jan. 10, 1928	3	500+	18,000+	----	----	1.4	35	20
Jan. 11, 1928	3	0	----	----	----	----	----	----
Jan. 12, 1928	3	2	50	----	----	----	----	----
Jan. 16, 1928	3	1	20	----	----	----	----	----
Jan. 17, 1928	4	0	----	----	----	----	----	----
Jan. 18, 1928	4	410	16,000	----	----	----	----	----
Jan. 19, 1928	2.5	4	90	----	----	----	----	----
Jan. 23, 1928	1.5	1	20	----	----	----	----	----
Jan. 23, 1928	1.5	0	----	----	----	----	----	----
Jan. 25, 1928	3	0	----	----	----	0	----	----
Jan. 25, 1928	3	3	80	----	----	0	----	----
Jan. 30, 1928	−2.5	4	130	----	----	4	130	1.019

TABLE B.—*Water and oyster examinations arranged chronologically by stations*—Continued

STATION C—1,500 YARDS NORTHEAST OF ROCKY POINT—Continued

Date	Temperature (water) ° C.	Oyster results				Water results		
		Liquor		Meats				
		Score	MPN	Score	MPN	Score	MPN	Density
Jan. 31, 1928	−0.5	0						
Feb. 1, 1928	−0.5	0						
Feb. 2, 1928	1	0						
Apr. 16, 1928	7	2	50			1	20	235
Apr. 23, 1928	6.7	0				32	800	22
Apr. 26, 1928	8	0				2	50	22
May 1, 1928	8.9	14	200			14	350	175
May 2, 1928	11.1	3	80			14	350	12
May 3, 1928	11.6	2	50			50	2,500	17
May 8, 1928	11.1	5	170			23	500	205
May 10, 1928	10	0				5	250	20
May 14, 1928	10	2	50			0	0	23
May 15, 1928	12.2	1	20			0	0	22
May 16, 1928	14.4	1	20			0	0	[illegible]
May 17, 1928	13.4	2	50			3	80	22
May 21, 1928	12	2	50			3	80	22

STATION D—500 FEET NORTH OF PATIENCE ISLAND

Date	Temperature (water) ° C.	Liquor Score	Liquor MPN	Meats Score	Meats MPN	Water Score	Water MPN	Density
Jan. 4, 1928	1	14	200			32	900	19
Jan. 4, 1928	1	14	200			5	250	19
Jan. 5, 1928	2	0				2.3	50	20
Jan. 10, 1928	3	41	1,300					
Jan. 11, 1928	3	0						
Jan. 12, 1928	3	3	80			14	350	
Jan. 16, 1928	3	1	20					
Apr. 12, 1928	6	1	20			14	350	22
Apr. 18, 1928	6	0				1	20	24
Apr. 26, 1928	7.5	0				2	50	225
May 1, 1928	8.3	2	50			1	20	215
May 2, 1928	11.1	0				1	20	20
May 3, 1928	11.6	2	50			3	50	17
May 8, 1928	11.1	14	500			5	170	20
May 10, 1928	10	3	80			5	250	21
May 14, 1928	10.5	1	20			2	50	23
May 15, 1928	12	1	20			0	0	20
May 16, 1928	12.2	0				0	0	23
May 17, 1928	13.4	0				2	50	22
May 21, 1928	12	5	170			4	130	22

STATION E—200 FEET WEST OF DEYER ROCK

Date	Temperature (water) ° C.	Liquor Score	Liquor MPN	Meats Score	Meats MPN	Water Score	Water MPN	Density
Nov. 30, 1927	10	1	20			3	80	1.020
Dec. 7, 1927	7	32	500			23	600	21
Dec. 12, 1927	6	23	350			32	900	19
Jan. 5, 1928	2	1	20			3	80	20
Jan. 9, 1928	2.5	3	80					18
Jan. 10, 1928	3	50	2,500					20
Jan. 12, 1928	3	14	350					
Jan. 16, 1928	2.5	0						20
Feb. 6, 1928	1	3	80	4	110	23	500	20
Feb. 7, 1928	0	14	350	2	40	4	130	20
Apr. 23, 1928	4.5	14	350			3	80	23
May 1, 1928	8.9	0				14	350	18
May 2, 1928	11.6	0				5	250	145
May 3, 1928	11.6	0				23	500	16
May 8, 1928	10	3	80			1	20	22
May 10, 1928	9.4	1	20			1	20	225

TABLE B.—*Water and oyster examinations arranged chronologically by stations*—Continued

STATION F—100 FEET WEST OF RUMSTICK SHOAL LIGHT BUOY

Date	Temperature (water) ° C.	Oyster results				Water results		
		Liquor		Meats				
		Score	MPN	Score	MPN	Score	MPN	Density
Nov. 22, 1927	9	50	1,700			32	900	20
Nov. 30, 1927	10	1	20			4	130	20
Dec. 7, 1927	6	14	350			3.2	80	
Dec. 12, 1927	6	23	500			23	600	19
Jan 9, 1928	2.5	5	170			4.5	130	18
Jan. 10, 1928	3	500+	18,000+			32	900	20
Jan. 12, 1928	3	5	170					
Jan. 16, 1928	2.5	2	50			4.1	130	19
Feb. 6, 1928	0.5	0		3	80	5	170	19
Feb. 7, 1928	0	0		0		5	250	20
Feb. 13, 1928	1	5	250	320	9,000	5	250	21
Feb. 13, 1928	1	1	20	1	20			21
Feb. 14, 1928	2	1	20	0		1	20	20
Feb. 14, 1928	2	1	20	0				20
Feb. 15, 1928	3	0		5	170	2	50	20
Feb. 15, 1928	3	1	20	0				20
Feb. 16, 1928	3	0		500+	18,000+	50	2,500	18
Feb. 16, 1928	3	1	20	23	500			18
Feb. 20, 1928	2	1	20	2	50	2	50	21
Feb. 21, 1928	0.5	0		3	70	4	130	
Feb. 22, 1928	0	0		0		2	50	19
Feb. 29, 1928	1	23	500	32	700	4	130	20
Mar. 1, 1928	1.5	0		0		1	20	20
Mar. 5, 1928	1	0		3	80	2	50	20
Mar. 6, 1928	0	3	80	1	20	2	50	20
Mar. 7, 1928	1	500+	18,000+	500+	18,000+	1	20	20
Mar. 8, 1928	1	1	20	0		0		1.020
Mar. 15, 1928	4	1	20	0		500+	18,000+	19
Mar. 20, 1928	3	0		0		4	130	20
Mar. 21, 19 8	3	14	350	5	250	23	500	21
Mar. 22, 1928	3.5	23	450	1	20	5	250	23
Mar. 26, 1928	6.25	0		0		1	20	215
Mar. 27, 1928	5.5	4	130	0		3	80	22
Mar. 28, 1928	5	50	2,500	41	1,300	14	350	21
Mar. 29, 1928	5	1	20	0		5	170	195

STATION G—1,500 YARDS SOUTHWEST OF BARRINGTON BEACH

Date	Temperature (water) ° C.	Liquor Score	Liquor MPN	Meats Score	Meats MPN	Water Score	Water MPN	Density
Nov. 22, 1927	9	50	2,500			5	250	20
Nov. 22, 1927	9	320	9,000			32	900	20
Nov. 23, 1927	10.5	32	700			32	900	18
Nov. 29, 1927	10.5	32	800			41	1,600	19
Nov. 29, 1927	10.5	23	500					19
Nov. 29, 1927	10.5	14	200			32	900	19
Nov. 29, 1927	10.5	23	500					19
Nov. 30, 1927	10	23	250			4	130	20
Dec. 7, 1927	6	32	800			14	250	185
Dec. 7, 1927	6	5	250			14	350	
Dec. 7, 1927	6	23	500			32	900	18
Dec. 12, 1927	6	32	800			32	900	19
Jan. 4, 1928	1	5	250					
Jan. 9, 1928	2.5	5	170					18
Jan. 10, 1928	3	410	16,000					
Jan. 12, 1928	3	3	80					
Jan. 16, 1928	3	2	50					20
Feb. 6, 1928	0.5	0						17
Feb. 7, 1928	0	0						20
Mar. 15, 1928	4	4	130	0		140	3,500	19
Mar. 20, 1928	3	0		0		32	800	20
Mar. 21, 1928	4	14	350	230	3,000	14	200	21
Mar. 22, 1928	3.5	14	350	32	800	4	130	23
Mar. 27, 1928	6	1	20	0		3	80	21
Mar. 28, 1928	5	32	800	3	80	3	80	21
Mar. 29, 1928	5	2	50	0		5	250	20

Table B.—*Water and oyster examinations arranged chronologically by stations*—Continued

STATION H—1,500 YARDS SOUTH OF NAYAT POINT

Date	Temperature (water) °F.	Oyster results				Water results		
		Liquor		Meats		Score	MPN	Density
		Score	MPN	Score	MPN			
Nov. 22, 1927	48.2	230	6,000			23	600	21
Nov. 23, 1927	50	23	450			32	900	19
Nov. 29, 1927	50.9	4	130			41	1,600	17
Nov. 29, 1927	50.9	3	70					17
Nov. 30, 1927	50	1	20			14	350	20
Dec. 7, 1927	42.8	32	800			23	600	1.0185
Dec. 12, 1927	42.8	32	800			41	1,600	19
Jan. 4, 1928	33.8	32	800					
Jan. 5, 1928	35.6	3	70					
Jan. 9, 1928	36.5	14	200					
Jan. 10, 1928	37.4	230	6,000					20
Jan. 12, 1928	37.4	4	130					
Jan. 16, 1928	37.4	2	50					18
Jan. 17, 1928	38.3	23	500	140	3,500	5	170	19
Jan. 17, 1928	38.3	3	80					19
Jan. 17, 1928	38.3	14	200				[illegible]	19
Jan. 18, 1928	40.1	140	3,500	320	9,000	4.1	40	19
Jan. 18, 1928	40.1	410	16,000	32	800			19
Jan. 19, 1928	37.4	1	20	0		14	350	20
Jan. 19, 1928	37.4	2	50	3	70			20
Jan. 23, 1928	34.7	3	70	1	20			19
Jan. 23, 1928	34.7	1	20	0				19
Jan. 24, 1928	32	0		0		4.1	110	19
Jan. 24, 1928	32	0		0				19
Jan. 26, 1928	35.6	0		0		5	170	19
Jan. 26, 1928	35.6	0		0				19
Jan. 30, 1928	27.5	0		0				19
Jan. 30, 1928	27.5	2	50	1	20	32	800	19
Jan. 31, 1928	31	2	50	0		5	250	18
Jan. 31, 1928	31	3	80	3	80			18
Feb. 1, 1928	31	1	20	3	80	50	2,500	16
Feb. 1, 1928	31	3	80	2	50			15
Feb. 2, 1928	32.8	1	20	0		32	800	19
Feb. 2, 1928	32.8	1	20	4	130			19
Feb. 6, 1928	32	3	80					18
Feb. 7, 1928	32	0						19
Feb. 8, 1928	35.6	23	500	5	250	4	130	20
Feb. 13, 1928	33.8	2	50					20
Feb. 14, 1928	35.6	14	200					19
Feb. 15, 1928	35.6	3	80					20
Feb. 16, 1928	39.2	0						
Feb. 20, 1928	36.5	1	20	3	80	5	250	21
Feb. 21, 1928	33.8	3	80	0		5	250	
Feb. 22, 1928	32	0		0		3	80	19
Feb. 27, 1928	33.8	2	50	0		2	50	19
Feb. 28, 1928	33.8	0		0		23	500	18
Feb. 29, 1928	33.8	1	20	1	20	23	500	19
Mar. 1, 1928	35.6	3	80	0		23	500	18
Mar. 5, 1928	35.6	0		50	2,500	2	50	20
Mar. 6, 1928	32	0		50	2,500	4	130	1.020
Mar. 7, 1928	33.8	2	50	0		41	1,300	20
Mar. 8, 1928	33.8	0		3	80	14	350	20
Mar. 12, 1928	35.6	3	80	0		23	500	19
Mar. 15, 1928	39.2	5	250	4	130	50	1,700	18
Mar. 20, 1928	37.4	3	70	0		14	350	20
Mar. 21, 1928	39.2	320	9,000	320	9,000	14	350	20
Mar. 22, 1928	38.3	0		0		5	170	23
Mar. 27, 1928	42.8	0		0		1	20	21
Mar. 28, 1928	41.0	14	350	23	500	50	2,500	21
Mar. 29, 1928	41.9	0		1	20	14	350	21
Apr. 17, 1928	44.0	2	50			4	130	285
Apr. 24, 1928	45.0	4	130			41	1,300	17
Apr. 30, 1928	47.3	50	2,500			140	3,500	11
May 1, 1928	50	4	130			41	1,300	215
May 2, 1928	52.8	4	130			50	1,400	195
May 3, 1928	52.0	5	170			50	2,500	14
May 7, 1928	50	4	110			140	3,500	18
May 8, 1928	52	3	80			14	350	20
May 10, 1928	50	3	80			32	800	22
May 14, 1928	50	1	20			14	350	215
May 15, 1928	54	2	50			4	130	205
May 16, 1928	56	1	20			0		22
May 17, 1928	54	23	500			5	250	215
May 21, 1928	51.8	5	170			5	250	25

TABLE B.—*Water and oyster examinations arranged chronologically by stations*—Continued

BULLOCK'S POINT

Date	Temperature (water) ° C.	Oyster results: Liquor: Score	Oyster results: Liquor: MPN	Oyster results: Meats: Score	Oyster results: Meats: MPN	Water results: Score	Water results: MPN	Water results: Density
Dec. 12, 1927	5	41	1,300			41	1,600	14
Jan. 4, 1928	1	41	1,300					Q[1]
Jan. 4, 1928	1	41	1,300					Q[1]
May 14, 1928	10.5	3	80			32	800	21Q
May 15, 1928	12.2	5	170			41	1,300	20Q
May 16, 1928	14.4	3	350			140	2,500	22Q
May 17, 1928	14	4	130			140	3,500	17Q
May 21, 1928	12	3	80			140	3,500	18Q
May 21, 1928	12	3	80			32	800	18Q

MIDDLE OF BAY

Date	Temperature (water) ° C.	Liquor: Score	Liquor: MPN	Meats: Score	Meats: MPN	Water: Score	Water: MPN	Water: Density
Nov. 23, 1927	10	41	1,300			14	1,600	19

OFF ALLENS HARBOR

Date	Temperature (water) ° C.	Liquor: Score	Liquor: MPN	Meats: Score	Meats: MPN	Water: Score	Water: MPN	Water: Density
Jan. 11, 1928	3	1	20			0.4	13	1.021
Jan. 11, 1928	3	1	20					20
Jan 11, 1928	3	2	80			3.2	80	20

STATION 1-A.—800 YARDS NORTHEAST RHODE ISLAND YACHT CLUB

Date	Temperature (water) ° C.	Liquor: Score	Liquor: MPN	Meats: Score	Meats: MPN	Water: Score	Water: MPN	Water: Density
Jan. 29, 1928	1	32	800	4	170	140	3,500	18
Mar. 1, 1928	2.5	14	500	4	110	230	6,000	16

[1] Q=Quahogs, or hard clams.

DEATHS DURING WEEK ENDED SEPT. 28, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 28, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,141	7,280
Deaths per 1,000 population, annual basis	9.0	10.1
Deaths under 1 year of age	503	560
Death under 1 year of age per 1,000 estimated live births	46	52
Deaths per 1,000 population, annual basis, first 39 weeks of year	11.4	11.4
Data from industrial insurance companies:		
Policies in force	67,628,155	67,147,726
Number of death claims	11,138	11,123
Death claims per 1,000 policies in force, annual rate	8.6	8.6
Death claims per 1,000 policies, first 39 weeks of year, annual rate	9.7	10.0

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Oct. 5, 1935, and Oct. 6, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 5, 1935, and Oct. 6, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
New England States:								
Maine	8		5		20		1	0
New Hampshire	1					1	0	0
Vermont	1				10		0	0
Massachusetts	4	13			27	7	4	0
Rhode Island	2	2				2	1	0
Connecticut	5		1	3	31	17	0	0
Middle Atlantic States:								
New York	38	15	[1] 7	[1] 7	89	36	6	1
New Jersey	14	23	4	10	10	23	1	0
Pennsylvania	52	59			49	215	2	5
East North Central States:								
Ohio	96	67	17	3	32	29	0	2
Indiana	76	48	13	18	15	40	1	1
Illinois	47	32	18	7	12	40	1	3
Michigan	23	10	1		27	32	1	1
Wisconsin	7	2	6	3	43	66	1	2
West North Central States:								
Minnesota	11	10		2	5	30	1	0
Iowa	13	13	10	2	2	15	0	1
Missouri	55	44	37	35	18	32	5	1
North Dakota	6	3		5	8	54	0	0
South Dakota	4	4			1	6	0	0
Nebraska	3	7		2		17	0	0
Kansas	20	12	1	3	4	12	1	0
South Atlantic States:								
Delaware	1	1			33	2	0	0
Maryland [3]	9	13	4	21	2	10	2	0
District of Columbia	15	15					2	0
Virginia	62	74			9	27	2	0
West Virginia	71	68	22	12	5	28	0	0
North Carolina [3]	64	131	7		1	11	1	1
South Carolina [4]	20	17	171	191		5	0	0
Georgia [4]	32	56					0	1
Florida [4]	8	11	1		5	3	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 5, 1935, and Oct. 6, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
East South Central States:								
Kentucky	60	129	5	34	13	20	2	0
Tennessee	67	64		12	1	2	3	0
Alabama [4]	45	59	5	9		21	0	1
Mississippi	23	26					0	0
West South Central States:								
Arkansas	29	15	7	5			1	0
Louisiana	26	10	6	3	2	4	0	1
Oklahoma [5]	21	3	37	17		1	3	1
Texas [4]	76	40	61	45	16	13	1	1
Mountain States:								
Montana		1	5	4	14	49	0	0
Idaho	1						0	0
Wyoming	3	1			11	1	0	0
Colorado	6	13			10	29	1	0
New Mexico	6	3	1	1	1		1	0
Arizona	1	3	17	4	3	2	0	0
Utah [2]						7	0	0
Pacific States:								
Washington	3				34	62	0	1
Oregon	2	3	19	22	48	10	2	0
California	40	27	18	10	71	55	2	1
Total	1,177	1,147	506	490	682	1,036	49	25
First 40 weeks of year	23,599	25,565	106,981	52,399	699,648	673,320	4,594	1,829

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
New England States:								
Maine	7	0	13	10	0	0	7	1
New Hampshire	3	0		12	0	0	0	1
Vermont	3	0	5	3	0	0	0	1
Massachusetts	99	4	90	69	0	0	3	3
Rhode Island	25	0	4	12	0	0	0	1
Connecticut	22	0	27	11	0	0	2	0
Middle Atlantic States:								
New York	106	6	213	127	0	0	20	34
New Jersey	31	0	37	41	0	0	12	8
Pennsylvania	12	5	211	226	0	0	20	31
East North Central States:								
Ohio	3	12	244	277	2	0	46	34
Indiana	1	1	97	83	1	0	3	12
Illinois	23	8	247	304	1	0	27	43
Michigan	25	16	117	110	1	0	17	30
Wisconsin	2	20	151	181	1	1	8	4
West North Central States:								
Minnesota	4	4	93	39	0	3	0	3
Iowa	3	3	42	28	2	1	5	23
Missouri	2	1	55	50	2	0	11	60
North Dakota	1	1	12	19	1	0	0	5
South Dakota	0	3	22	18	0	1	4	0
Nebraska	1	1	26	20	3	1	0	0
Kansas	0	2	65	23	9	0	12	5
South Atlantic States:								
Delaware	0	0	3	4	0	0	2	4
Maryland [3]	4	0	45	34	0	0	32	9
District of Columbia	5	1	6	16	0	0	2	1
Virginia	7	8	58	81	0	0	25	16
West Virginia	1	6	78	113	0	0	16	46
North Carolina [3]	9	1	57	74	0	0	16	7
South Carolina [4]	1	0	7	7	0	0	7	15
Georgia [4]	0	0	22	17	0	0	13	8
Florida [4]	0	0	3	1	0	0	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 5, 1935, and Oct. 6, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934	Week ended Oct. 5, 1935	Week ended Oct. 6, 1934
East South Central States:								
Kentucky	11	8	75	94	0	0	145	39
Tennessee	1	4	69	89	0	0	24	39
Alabama [4]	0	0	10	22	0	0	6	9
Mississippi	0	0	15	12	1	0	11	7
West South Central States:								
Arkansas	0	0	7	5	0	0	9	5
Louisiana	0	0	15	9	0	1	7	13
Oklahoma [5]	0	1	19	13	1	0	17	10
Texas [4]	1	5	23	27	0	0	27	38
Mountain States:								
Montana	0	10	52	13	0	0	3	7
Idaho	0	7	2	3	1	0	1	22
Wyoming	0	1	15	3	1	0	0	1
Colorado	0	0	35	52	0	1	4	10
New Mexico	0	0	10	17	0	0	22	7
Arizona	0	6	9	16	0	0	2	5
Utah [2]	0	1	27	12	0	0	2	1
Pacific States:								
Washington	2	47	43	55	5	1	1	2
Oregon	1	3	48	36	0	0	3	3
California	29	51	140	138	1	0	29	17
Total	445	247	2,664	2,626	33	10	623	640
First 40 weeks of year	8,953	6,054	191,698	159,537	5,517	3,898	14,075	16,552

[1] New York City only.
[2] Week ended earlier than Saturday
[3] Rocky Mountain spotted fever, week ended Oct 5, 1935, 1 case in North Carolina.
[4] Typhus fever, week ended Oct. 5, 1935, 19 cases, as follows South Carolina, 2; Georgia, 7; Florida, 1; Alabama, 6; Texas, 3
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July 1935										
Hawaii Territory		7	2		4		0		0	4
August 1935										
Arizona	2	9	24	4	13		2	13	0	14
Florida	1	36	2	42	11	3	4	11	0	16
September 1935										
Connecticut	2	9	5	1	23		143	84	0	20
Delaware		4	6		18		0	15	0	5
District of Columbia	12	81	1		1		29	43	0	8
Iowa	1	68	11	7	7		15	152	3	27
Maine		9	2		31		61	31	0	10
Pennsylvania	19	113		7	119	3	77	496	0	150

July 1935

	Cases
Hawaii Territory:	
Chicken pox	24
Dysentery (amoebic)	1
Leprosy	2
Mumps	22
Typhus fever	1
Whooping cough	89

August 1935

	Cases
Arizona:	
Chicken pox	22
Conjunctivitis, acute contagious	2
Dysentery	18
German measles	2
Impetigo contagiosa	2
Leprosy	1
Mumps	33
Trachoma	18
Undulant fever	3
Whooping cough	27
Florida:	
Chicken pox	2
Dengue	1
Dysentery (amoebic)	2
Dysentery (bacillary)	1
Mumps	21
Typhus fever	1
Undulant fever	3
Whooping cough	30

September 1935

	Cases
Actinomycosis:	
Pennsylvania	1
Anthrax:	
Pennsylvania	1
Chicken pox:	
Connecticut	30
District of Columbia	7
Iowa	28
Maine	23
Pennsylvania	216
Conjunctivitis:	
Connecticut	1
Dysentery:	
Connecticut (bacillary)	92
Iowa (amoebic)	1
Epidemic encephalitis:	
Connecticut	3
Pennsylvania	3
German measles:	
Connecticut	4
Iowa	2
Maine	16
Pennsylvania	24
Impetigo contagiosa:	
Iowa	4
Lead poisoning:	
Connecticut	1
Mumps:	
Connecticut	25
Delaware	1
Iowa	66
Maine	88
Pennsylvania	277
Ophthalmia neonatorum:	
Pennsylvania	7

September 1935—Continued

	Cases
Paratyphoid fever:	
Connecticut	19
Rabies in animals:	
Connecticut	1
Rocky Mountain spotted fever:	
Connecticut	1
Iowa	2
Scabies:	
Iowa	2
Septic sore throat:	
Connecticut	5
Maine	1
Tetanus:	
Connecticut	1
Pennsylvania	1
Trachoma:	
Pennsylvania	1
Trichinosis:	
Connecticut	1
Undulant fever:	
Connecticut	2
Iowa	6
Maine	1
Pennsylvania	4
Vincent's infection:	
Iowa	1
Maine	2
Whooping cough:	
Connecticut	174
Delaware	14
District of Columbia	12
Iowa	51
Maine	49
Pennsylvania	920

WEEKLY REPORTS FROM CITIES

City reports for week ended Sept. 28, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	1	0	0	1	0	0	1	0	0	20
New Hampshire:											
Concord	0		0	0	0	0	0	1	0	0	8
Nashua	0			0		0	0		0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	0
Burlington	0		0	0	0	0	0	0	0	0	11
Rutland	0		0	0	0	2	0	0	0	1	7
Massachusetts:											
Boston	3		0	6	15	9	0	5	1	9	181
Fall River	0		0	0	0	1	0	0	0	4	21
Springfield	0		0	0	1	2	0	0	0	4	25
Worcester	0		0	0	4	11	0	2	0	0	45
Rhode Island:											
Pawtucket	0		0	0	0	0	0	0	0	0	14
Providence	0		0	1	4	7	0	3	0	8	47
Connecticut:											
Bridgeport	0		0	0	0	0	0	1	0	1	33
Hartford	0		0	0	0	4	0	6	1	6	32
New Haven	0		0	0	3	0	0	0	0	4	36
New York:											
Buffalo	0		0	3	8	16	0	9	2	24	118
New York	20	15	2	16	80	36	0	76	8	140	1,249
Rochester	0		0	0	5	2	0	0	0	5	60
Syracuse	0		0	2	4	6	0	2	0	10	40
New Jersey:											
Camden	1		0	1	0	1	0	1	3	0	31
Newark	0	5	1	0	5	5	0	5	2	33	82
Trenton	0		0	0	1	2	0	3	0	2	39

City reports for week ended Sept. 28, 1935—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Vermont:			
Barre	0	0	2
Massachusetts:			
Boston	0	0	49
Fall River	--------	--------	1
Springfield	0	0	1
Worcester	1	1	2
Rhode Island:			
Providence	1	0	15
Connecticut:			
Bridgeport	0	0	7
New Haven	0	0	1
New York:			
New York	7	9	101
New Jersey:			
Newark	0	0	8
Pennsylvania:			
Philadelphia	1	1	4
Illinois:			
Chicago	3	1	7
Springfield	0	1	0
Michigan:			
Detroit	0	0	8
Flint	0	0	1
Grand Rapids	0	0	2
Minnesota:			
Minneapolis	0	0	1
Missouri:			
Kansas City	1	1	0
St. Louis	0	1	0
Maryland:			
Baltimore	1	1	6
District of Columbia:			
Washington	3	2	7
Virginia:			
Lynchburg	0	0	1
Richmond	0	0	3
Kentucky:			
Ashland	0	0	1
Louisville	1	2	2
Tennessee:			
Memphis	0	1	0
Alabama:			
Birmingham	1	0	0
Arkansas:			
Fort Smith	1	0	0
Little Rock	0	0	2
Louisiana:			
New Orleans	1	0	1
Texas:			
Dallas	1	0	0
Fort Worth	0	0	1
Oregon:			
Portland	0	0	1
California:			
Los Angeles	0	1	9
San Francisco	0	0	1

Epidemic encephalitis.—Cases: Worcester, 1; Providence, 1; Kansas City, Mo., 3; St. Louis, 1; New Orleans, 1; San Francisco, 1.

Pellagra.—Cases: Boston, 1; Charleston, S. C., 1; Savannah, 1; Louisville, 1; Birmingham 1; New Orleans, 1; Sacramento, 1; San Francisco, 2.

Typhus fever.—Cases: Charleston, S. C., 1; Florence, S. C., 1; Atlanta, 1; Savannah, 3; Tampa, 1; Montgomery, 2; Dallas, 1; Houston, 1. Deaths: Dallas, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended September 21, 1935.—During the 2 weeks ended September 21, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1		4				1		6
Chicken pox				50	74	46	23	6	19	218
Diphtheria		8	7	32	18	9	3	3		80
Dysentery				6	5					11
Erysipelas				6	1	2		1	2	12
Influenza		4			13				6	23
Measles	3	28	3	42	181	6	36	26	83	408
Mumps		35			58	39	212	16	25	385
Paratyphoid fever	1	2			10					16
Pneumonia					6				6	12
Poliomyelitis		2	2	1	18	6	1	51	1	82
Scarlet fever	2	18	5	199	148	28	3	20	24	447
Smallpox									2	2
Trachoma						3			6	9
Tuberculosis	5	22	13	138	85	8	7	5	22	305
Typhoid fever	4	6	25	80	52	6	10	3	7	193
Undulant fever				2	3		5			10
Whooping cough	6	25		134	250	46	110	15	16	602

JAPAN

Epidemic encephalitis.—From August 24, 1935, to September 19, 1935, 350 cases of epidemic encephalitis with 73 deaths were reported in the Prefecture of Kanagawa, Japan, distributed as follows:

	Cases	Deaths	Cases recovered
Yokohama	168	21	21
Yokosuka	77	22	9
Kawasaki	40	14	8
Hiratsuka	1	0	0
Suburban districts	64	16	4
Total	350	73	42

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE —A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for September 27, 1935, pages 1354–1368 A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued October 25, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month

Cholera

Siam—Nondpuri Province.—On September 25, 1935, one case of cholera was reported in Nondpuri Province, Siam.

Plague

Ceylon—Tellijjawilla.—On September 30, 1935, one case of plague was reported at Tellijjawilla, near Matara, Ceylon.

Peru.—During the month of August 1935, plague was reported in Peru as follows: 3 cases with 2 deaths at Callao and 2 cases at Lima. In Chancay Province 5 cases of plague with 3 deaths, including 3 cases of suspected plague with 2 deaths, were reported.

Yellow Fever

Columbia—Intendencia of Meta—Acacias.—On August 2, 1935, one death from yellow fever was reported at Acacias, Intendencia of Meta, Colombia.

UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 39; title 44, section 220.

It contains (1) current information regarding the prevalance and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 OCTOBER 25, 1935 NO. 43

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

September 8–October 5, 1935

Poliomyelitis.—The number of cases of poliomyelitis dropped from 3,625 for the 4 weeks ended September 7 to 2,528 for the current 4-week period. While the number of weekly cases fluctuated considerably in the areas which have shown the greatest prevalence, it is evident that the disease is on the decline in all sections of the country. Later reports (week ended October 12) indicate a further decline. As compared with recent years the current incidence for the country as a whole was about two and one-half times that for the corresponding period of last year and more than double the incidence in 1933.

Poliomyelitis has been most prevalent in the regions along the Atlantic coast and, while it is on the decline, the numbers of cases in those regions are considerably in excess of those of recent years. In the New England and Middle Atlantic regions the incidence dropped about 50 percent below that for the preceding 4 weeks, but the number of cases (1,805) was almost 18 times that for the corresponding period of last year, and about 3 times the number in 1933 and 1932; it did not reach the 1931 level of 2,562 cases, however. The South Atlantic States continued to report a rather high incidence (166 cases as compared with 49 last year), and the incidence was somewhat above the seasonal expectancy in some States in the East North Central and South Central regions. In the Mountain and Pacific regions the number of cases was only about 20 percent of last year's figures for this period, but it was slightly above that for each of the 3 preceding years. The West North Central States reported about the normal incidence for this season.

Table 1 shows for each State the number of cases reported for the 24 weeks since the increased incidence began, and comparative figures for the corresponding period of each of the 3 preceding years; it also includes weekly data for 1935.

[1] From the Office of Statistical Investigations, U S Public Health Service These summaries include only the 8 important communicable diseases for which the Public Health Service receives regular weekly reports from the State health officers The numbers of States included for the various diseases are as follows Typhoid fever, 48, poliomyelitis, 48, meningococcus meningitis, 48, smallpox, 48, measles, 47; diphtheria, 48, scarlet fever, 48, influenza, 44 States and New York City.

TABLE 1.—*Poliomyelitis cases reported in each State during recent weeks*[1] *of 1935*

State	24 weeks ended—				Cases reported in 1935 for week ended—						
	Oct. 15, 1932	Oct. 14, 1933	Oct. 13, 1934	Oct. 12, 1935	Aug. 31	Sept. 7	Sept. 14	Sept. 21	Sept. 28	Oct. 5	Oct. 12
All States[2]	2,843	3,862	5,944	8,884	1,088	1,007	849	665	569	445	336
New England:											
Maine	37	40	12	116	16	17	12	18	14	7	13
New Hampshire	3	6	6	52	6	3	4	5	4	3	3
Vermont	2	19	6	33	2	4	2	5	7	3	6
Massachusetts	87	339	61	1,232	166	169	143	132	88	99	52
Rhode Island	8	16	1	303	58	31	36	37	32	25	13
Connecticut	22	64	13	348	39	38	38	32	33	22	18
Middle Atlantic:											
New York	251	1,229	186	2,601	460	414	285	198	150	106	71
New Jersey	311	212	56	404	35	72	54	52	51	31	24
Pennsylvania	1,118	329	94	144	13	9	38	12	15	12	1
East North Central:											
Ohio	54	271	205	70	14	2	10	3	7	3	5
Indiana	10	29	44	28	2	3	3	3	1	1	4
Illinois	121	174	159	189	19	22	18	12	14	23	16
Michigan	81	68	175	545	108	76	65	45	30	25	29
Wisconsin	33	28	83	49	4	4	8	3	4	2	0
West North Central:											
Minnesota	88	267	61	48	5	5	8	6	2	4	3
Iowa	33	32	23	39	4	5	4	3	3	3	2
Missouri	5	29	22	25	0	3	4	1	2	2	1
North Dakota	25	68	8	9	1	0	0	4	0	1	0
South Dakota	7	23	33	6	0	0	2	0	0	0	2
Nebraska	18	10	8	6	0	0	0	1	1	1	1
Kansas	28	39	57	18	2	1	1	2	4	0	2
South Atlantic:											
Delaware	8	14	2	4	2	0	0	0	0	0	0
Maryland	25	29	19	83	5	11	7	5	13	4	6
District of Columbia	24	6	7	74	5	5	9	7	7	5	4
Virginia	33	28	55	657	31	16	21	8	10	7	1
West Virginia	35	67	67	33	3	3	8	2	0	1	0
North Carolina	28	16	28	620	9	11	14	8	15	9	9
South Carolina	30	8	4	27	1	1	0	0	1	1	0
Georgia	5	8	16	14	0	0	2	1	0	0	0
Florida	0	5	9	12	0	0	0	0	1	0	0
East South Central:											
Kentucky	21	29	88	268	36	42	18	18	19	11	11
Tennessee	28	94	42	69	1	3	4	4	3	1	1
Alabama	20	12	36	41	4	2	1	0	1	0	1
Mississippi	17	6	16	10	0	0	0	1	0	0	2
West South Central:											
Arkansas	9	7	6	21	0	0	3	3	4	0	0
Louisiana	26	16	9	72	1	2	1	2	1	0	4
Oklahoma	17	14	10	8	0	1	0	0	0	0	0
Texas	58	30	94	42	9	3	1	1	1	1	2
Mountain:[2]											
Montana	2	6	284	3	0	1	0	0	0	0	0
Idaho	0	1	112	1	0	0	0	0	0	0	0
Wyoming	4	11	6	1	0	0	0	1	0	0	0
Colorado	2	6	13	6	0	1	0	0	1	0	1
New Mexico	5	4	11	4	0	0	0	1	0	0	0
Arizona	5	4	94	13	1	1	4	2	1	0	0
Utah	1	7	11	6	0	1	0	0	0	0	1
Pacific:											
Washington	50	55	596	14	1	1	0	0	0	2	0
Oregon	10	21	59	11	1	0	2	0	3	1	1
California	88	71	2,937	505	24	24	19	27	26	29	26

[1] See Public Health Reports for Sept. 27, 1935, p. 1330, Aug. 30, p. 1166, and Aug. 2, p. 986, for preceding weekly data.
[2] Nevada excluded; no data.

Meningococcus meningitis.—In relation to recent years the incidence of meningococcus meningitis remained at a rather high level. For the 4 weeks ended October 5 the number of reported cases was

240, which represented an increase of almost 80 percent over the figures for the corresponding periods in 1934 and 1933, and about 50 percent over the 1932 incidence.

Table 2 gives in 4-week periods for each geographic area the number of cases of meningococcus meningitis reported since the beginning of the current year, with comparative data for the years 1934 and 1933. An examination of the table shows that all sections of the country have contributed to the high incidence of this disease, which has prevailed since the beginning of the year. During the 4 weeks ended October 5, the incidence in the West North Central area dropped to the level of last year, and in the East North Central it dropped below that of last year, but in all other sections the number of cases remained well above the numbers reported in recent years.

TABLE 2.—*Meningococcus meningitis cases reported in each geographic area during 1935, 1934, and 1933*

Geographic area and year	Year to date	4-week period ended—									
		Jan. 26	Feb. 23	Mar. 23	Apr. 20	May 18	June 15	July 13	Aug 10	Sept 7	Oct. 5
All States:[1]											
1935	4,602	307	525	646	659	705	[illegible]	392	292	268	240
1934	1,837	210	227	225	249	220	178	134	130	129	135
1933	2,385	362	307	393	340	230	202	145	147	129	130
New England and Middle Atlantic.											
1935	981	42	52	111	127	155	136	109	87	66	96
1934	360	38	40	42	36	41	42	26	39	28	28
1933	488	58	58	63	72	39	44	34	48	45	27
East North Central.											
1935	1,111	79	120	149	189	105	128	92	67	57	35
1934	533	60	58	58	83	59	54	42	36	39	44
1933	759	115	86	137	115	89	79	51	30	28	29
West North Central:											
1935	524	33	81	90	75	83	62	27	30	26	17
1934	235	16	31	26	35	34	28	12	14	21	18
1933	304	53	39	63	40	34	25	13	16	12	9
South Atlantic:											
1935	868	54	93	121	108	150	121	77	48	66	30
1934	208	25	24	29	41	21	13	16	10	12	17
1933	245	41	43	26	30	17	16	15	16	15	26
East and West South Central:											
1935	688	67	124	114	101	68	63	49	32	29	41
1934	332	48	47	51	35	51	28	15	19	18	20
1933	382	68	56	60	56	35	21	20	25	14	27
Mountain and Pacific:[1]											
1935	430	32	55	61	59	54	58	38	28	24	21
1934	169	23	27	19	19	14	13	23	12	11	8
1933	207	27	25	44	27	16	17	12	12	15	12

[1] Nevada excluded; no data.

Smallpox.—For the 4 weeks ended October
of smallpox reported. Of the total number, Kansas reported 31, Washington 16, North Dakota, South Dakota, and Nebraska 7 each; Wisconsin and Wyoming 6 each; the remaining cases were widely distributed over the various geographic areas. In the West North Central area, where several of the above-mentioned States are located, the total number of cases (59) was more than 3 times last year's figure for this same period, while in the South Central area only 3

cases were reported, as against 25 last year. Only 1 case was reported from the South Atlantic group of States and none from the New England and Middle Atlantic groups.

Scarlet fever.—For the 4 weeks under report, 8,277 cases of scarlet fever were reported—an increase of approximately 4,300 over the preceding 4-week period. All regions contributed to this increase. A rise in scarlet fever incidence is normally expected at this time of the year, and a comparison with preceding years shows that the current figures are about on a level with those for the corresponding period in each of the 3 preceding years. In the West North Central and the Mountain and Pacific regions, where the disease has been quite high throughout the current year, the incidence remained well above that of preceding years; the East North Central and South Atlantic States reported fewer cases than last year; and the New England and Middle Atlantic and South Central regions approximated last year's figures.

Typhoid fever.—The expected seasonal decline of typhoid fever was reported from practically all sections of the country. During the current 4-week period 2,604 cases were reported. For the corresponding period in 1934, 1933, and 1932, the cases totaled 2,885, 3,093, and 3,583, respectively. In all regions except the South Central the current incidence was the lowest for this period in recent years. Several of the South Central States contributed to a 15 percent increase over last year's figures; the largest excesses were reported from Kentucky, Louisiana, and Oklahoma.

Measles.—The number of cases of measles declined further during the current 4-week period. The total number of reported cases (2,306) was about 75 percent of last year's figure for the corresponding weeks and was about on a level with the incidence in each of the 5 preceding years. A similar situation as that described for the whole reporting area existed in each section of the country, except the Mountain and Pacific, where the decline was somewhat slower and the number of cases was still about 25 percent above last year's figure for this period.

Diphtheria.—A rather sharp increase in diphtheria is normally expected at this time of the year. For the 4 weeks ended October 5 the number of cases totaled 3,821, approximately 1,000 more than were reported for the preceding 4 weeks. As compared with recent years the current incidence was about 10 percent above that of last year but was considerably below each of the 5 preceding years. The South Atlantic States reported fewer cases than last year, but in all other sections the current incidence exceeded that of last year. The North Central and the Mountain and Pacific regions reported the greatest increases.

Influenza.—The cases of influenza reported for the current 4-week period numbered 1,956, as compared with 1,776, 2,137, and 2,593 for the corresponding period in the years 1934, 1933, and 1932, respectively. In the New England and Middle Atlantic and the Mountain and Pacific regions the disease was less prevalent than at this time last year, but all other sections reported slight increases over last year's figures. While the number of cases in the North Central and South Central regions has not been large, the disease has been considerably more prevalent there throughout the entire year than it was in 1934.

Mortality, all causes.—Deaths from all causes in large cities, as reported by the Bureau of the Census for the current 4-week period, averaged 10.0 per thousand inhabitants (annual basis), as compared with 9.9, 9.8, and 9.5 for the corresponding period in the years 1934, 1933, and 1932, respectively.

CULTIVATION OF THE VIRUS OF ROCKY MOUNTAIN SPOTTED FEVER IN THE DEVELOPING CHICK EMBRYO

By Ida A. Bengtson, *Senior Bacteriologist*, and R. E. Dyer, *Surgeon, United States Public Health Service*

In an effort to cultivate the virus of Rocky Mountain spotted fever, the chorio-allantoic membrane of the developing chick embryo was used in accordance with the technique of Goodpasture.

Since there is no evidence at the present time that the virus of Rocky Mountain spotted fever can be propagated outside the animal body on media which do not contain living elements, the choice lies between the tissue-culture method and cultivation in the developing chick embryo, though the method of Silber and Dosser (*1*) of cultivating the virus of typhus exanthematicus with non-pathogenic yeasts or bacteria merits consideration.

The tissue-culture method has been used in a few cases. Wolbach and Schlesinger (*2*) reported the cultivation of the virus of Rocky Mountain spotted fever in tissue plasma culture in 1923. In 2 experiments, the virus was carried through 4 "generations", and in 1 experiment through 6 "generations." Pinkerton and Hass (*3*) cultivated the rickettsiae of Rocky Mountain spotted fever in tissue culture, their method differing from Wolbach's in that the same infected cells were propagated indefinitely.

The chick-embryo method is being used increasingly in the cultivation of viruses and has also been used in attempts to cultivate poorly growing bacteria such as the leprosy bacillus. It offers the advantage that readily accessible living tissue is available and that by a simple technique the tissue may be inoculated and, if growth is obtained,

it may be possible to continue such growth through a series of passages. This technique has been successfully applied in the cultivation of the viruses of fowl-pox by Woodruff and Goodpasture (*4*), vaccine virus by Goodpasture, Woodruff, and Buddingh (*5*), Nauck and Paschen (*6*), Stevenson and Butler (*7*), and Lehmann (*8*); "a disease of parrots and parrakeets differing from psittacosis", by Rivers and Schwentker (*9*); herpes simplex, by Dawson (*10*); infectious laryngo-tracheitis, by Burnet (*11*); vesicular stomatitis, by Burnet and Galloway (*12*); fowl plague and Newcastle disease, by Burnet and Terry (*13*); psittacosis, by Burnet and Rountree (*14*); equine encephalo-myelitis, by Higbie and Howitt (*15*); and alastrim, by Torres and Teixeira (*16*).

Among those diseases in which rickettsiae occur, Zia (*17*) has reported the cultivation, through the third generation, of the rickettsiae of Mexican typhus fever. Da Cunha (*18*) has reported the cultivation of the virus of typhus exanthematicus of Sao Paulo, which corresponds immunologically with the North American Rocky Mountain spotted fever. He studied the first-generation culture without attempting to carry the virus further in the chick embryo. The material used as inoculum was spleen from an infected guinea pig in which no rickettsiae could be demonstrated. Rickettsiae were found, however, in the membrane of the chick embryo.

Technique.—The cover-slip method of making inoculations of the membrane was found the most satisfactory of the methods tried. A carborundum disk driven by a dental engine was used in making a triangular opening in the shell in the neighborhood of the location of the embryo, as revealed by candling. After swabbing with alcohol and flaming, the shell membrane was cut through on two sides of the triangle and the flap bent back, tearing the membrane on the third side of the triangle. The three sides of the triangle were ringed with sterile vaseline and a sterile cover slip was placed over the opening. The eggs were usually incubated a day or two longer before being used. Employing this method it was possible to make observations of the embryo through the cover-slip window and thus to judge whether deaths were due to the action of the virus or to some other cause. The method of Higbie and Howitt was used for making the inoculations. The inoculum was taken up in a 1-cc syringe, fitted with a 23-gage needle, which was introduced through the vaseline at one corner of the triangle, and the suspension was allowed to drip on the surface of the membrane. When it was desired to remove the membrane, an oval ring was cut in the shell with the dental engine, the shell membrane was cut through with a sterile knife, and the cap was removed.

The eggs were incubated at the usual chicken incubator temperature of 39.5° C. and, after inoculation, removed to a bacteriological

incubator regulated at 37.5° C. Beginning with the eighteenth generation, some of the embryos were incubated at a temperature of 33° C. Embryos 10 to 12 days old were used for the inoculations.

The strain used for propagation.—The strain of Rocky Mountain spotted fever used in the cultivation experiments was procured from the Public Health Service laboratory in Montana. This strain is known as the Bitterroot strain; it has been used extensively for experimental work and provokes typical reactions in guinea pigs. In the routine maintenance of this strain, guinea pigs are inoculated intraperitoneally with 1 or 2 cc of heart blood taken from an infected guinea pig on the second day of fever. This results in the infection of practically all the inoculated guinea pigs, with the febrile reaction beginning usually on the third day after inoculation.

About 75 percent of male guinea pigs develop the typical spotted fever scrotal reaction, following inoculation with the Bitterroot strain. This reaction first appears as a rash and proceeds to necrosis and sloughing if death does not intervene. The time of appearance of the rash varies somewhat, the limits being between the first and eighth day of fever, the usual time of appearance being the third to the fifth day.

Approximately 87 percent of infected guinea pigs succumb to the disease commonly between the sixth and eleventh day of fever, with the eighth being the most frequent day of death. At autopsy these animals show varying degrees of necrosis of the scrotum and an enlarged, smooth, dark spleen. In guinea pigs recovering from the infection, the temperature reaches normal after 1 to 2 weeks of fever.

In beginning the cultivation experiment the spleen was removed from a guinea pig in the second day of fever following inoculation with the Bitterroot spotted fever strain of virus. The spleen was weighed, and a 10-percent suspension made with sterile salt solution. This suspension was further diluted to 1/10, and the amount of the inoculum used was 0.1 cc of this dilution.

Serial passage of the growth in the chick embryos.—For passages succeeding the first inoculation, a portion of the membrane which had been exposed to the action of the inoculum, approximately one-tenth of the entire membrane, was macerated and suspended in sterile 0.85-percent salt solution, and 0.1 cc of this suspension used to inoculate a new series of eggs. Transfers were usually made from more than one embryo. The number of the embryos inoculated at each passage was six or more. In some cases dilutions of 1/10 and 1/100 of the original suspension were used. Transfers were usually made 5 days apart, though a few were made 4 and 6 days apart.

At the time of making the transfers to a new series, a small amount of membrane was macerated on a slide and stained by Gram's method, to determine whether bacteria were present, and small amounts of

tissue were planted in glucose agar, blood agar, and broth. The cultures were sterile throughout the experiments, except that a staphylococcus contaminant was present in the membrane in one instance, and a mold was observed growing on the membrane of two of the embryos.

A part of the suspension of each membrane used for inoculating a new series of eggs was inoculated intraperitoneally into two guinea pigs, in order to determine whether the virus was still active. The results in the guinea pigs will be considered more at length later in the discussion.

The cultivation of the virus in the embryo by the method described was found to be comparatively easy. During the period from April 24 to August 3 the virus was continued through 20 passages.

Daily observations were made of the embryos, and the time of death was recorded. A number of deaths occurred on the first, second, and third days, which probably were not the result of the virus infection. These may have been due to trauma or to other causes. Deaths on the fifth and sixth days occurred with sufficient regularity to make it quite probable that these were usually the result of the infection with spotted fever. A few embryos survived 7 and 8 days, and occasionally one attained full maturity and hatched. As controls, may be cited chick embryos which were inoculated with the virus of endemic typhus fever, and the virus of lymphocytic choriomeningitis. These latter viruses were being cultivated similarly in the chick embryos at the same time as was the Rocky Mountain spotted fever virus. The period of incubation used for these viruses was 6 and 7 days. Regular deaths as noted above, following the inoculation of the Rocky Mountain spotted fever virus, did not follow the inoculation with the other two viruses.

The virus apparently had a lethal effect on the embryo from the beginning of the cultivation experiments, and there was no evidence that the virulence for the embryo decreased during the continued passage of the virus. On the other hand, there was some indication that the virulence increased. In the fourth generation 9 embryos, in groups of three, were inoculated with virus from the preceding generation. One embryo died on the second day and the remaining embryos were all living on the sixth day. Three of these were used for passage to the next generation, and of the remaining embryos, two died on the seventh day, two on the eighth day, and the remaining embryo hatched on the ninth day. In the fifteenth generation, 18 embryos were inoculated from one embryo of the preceding generation. Of these, 2 died on the second day, 1 on the third day, 2 on the fourth day. On the fifth day, 8 of the remaining embryos were dead and 5 were living. In the nineteenth generation, incubated at 33° C., there were only 2 embryos among 9 living on the fourth day. In the

twentieth generation, of 8 embryos all were living on the fourth day, and all were dead except 2 on the fifth day.

Distribution of the virus.—Portions of the membrane some distance removed from the site of inoculation were shown to be infectious by inoculation into guinea pigs. The virus was not confined to the membrane, but developed also in certain of the organs. In the seventh and eighteenth generations the liver and brain were found to be infective for guinea pigs, bringing about the usual temperature rise characteristic of Rocky Mountain spotted fever. Titration on guinea pigs of pooled brain material in the eleventh generation showed a lower concentration of virus in the brains than in the membrane.

The lesion.—A rather characteristic lesion developed at the site of inoculation. By the method of inoculation used, that of allowing the suspension of tissue to drop on the membrane from a hypodermic syringe, the portion of the membrane beneath the window which was not adherent to the shell was exposed to the action of the inoculum. Usually an artificial air sac was present at this locality, but sometimes not, in which case the membrane became adherent to the cover slip used for covering the opening. By means of a dissecting microscope, the development of the lesion could be readily observed. The portion of the membrane adherent to the cover slip showed small, discrete, cloudy areas, and these areas appeared as moist, round, convex colony-like protuberances on the membrane when it was not adherent to the cover slip or to the shell. These usually developed in the course of 2 or 3 days. There was considerable variation in the development of the lesion, some membranes showing only a few colonylike elevations and others showing a great many (fig. 3). In the early generations the elevations were not particularly noticeable, and it was only in the fourth and later generations that they were conspicuous. In the course of 4 to 5 days the colonylike growths appeared to coalesce and become drier in appearance, and the part of the membrane not adherent to the shell showed a rugose, cloudy appearance, with thickening and edema. In some cases the cloudy appearance was so pronounced that the membrane appeared whitish. The portion of the membrane which was adherent to the shell was moist and cloudy and edematous.

Rickettsiae.—The presence of rickettsiae was not definitely ascertained in the early generations. After the virus had been carried through a number of generations, and it had been demonstrated that the virus was actually multiplying, more detailed studies were made. The method used was that of making impression smears of the membrane in the manner described by Burnet and Rountree, but slightly modified. The portion of the membrane which had been exposed to the action of the inoculum was transferred to a slide, the ectodermal

side down, and covered with blotting paper. This was then covered with another slide. It was found convenient to clamp the slides together with binder clips at each end, then to flame lightly, or to allow the preparation to remain for one-half to 1 hour without flaming. The blotting paper was removed, carrying most of the tissue with it. In this way a layer of the epithelial cells usually remained on the slide.

Typical rickettsiae were found in the membranes of all the generations succeeding the tenth. Though not exceedingly numerous, they were present in moderate numbers in many fields (figs. 1 and 2). They were rather definitely more numerous in the membranes of embryos incubated at 33° C., than in those incubated at 37.5° C. In those incubated at 37.5° C. the number of rickettsiae per cell varied from 5 or 6 to 25 or even 50, and occasionally about 100. In those incubated at 33° C. there were more cells infected and the number of rickettsiae per cell sometimes approached several hundred. No cells packed with rickettsiae were found at either temperature. The number of cells containing rickettsiae per field could not be easily estimated, as some groups of epithelial cells contained no rickettsiae, while in other groups a considerable number of the cells were infected, particularly at the margin of the group.

The rickettsiae usually occurred characteristically in the cytoplasm of the cells, frequently in a peripheral position. No rickettsiae were observed in the nuclei of the cells. They were sometimes found outside the cells, particularly in membranes from embryos which had died recently and in those which were probably near the lethal point. Groups containing quite large numbers of organisms outside the cells occurred in some of the generations, particularly in the eighteenth and nineteenth. In some of these the appearance of the preparations suggested a breaking down of the cell structure.

In the twelfth generation great numbers of organisms which appeared somewhat larger than rickettsiae were present in the brain. These were so numerous that they were seen in practically every field. The first inclination was to consider them not rickettsiae; but in view of the appearance of some of the organisms seen later, which were undoubtedly rickettsiae, the possibility that these were also rickettsiae did not seem so unlikely. A suspension of the membrane of the embryo in question was transferred to 20 eggs, and rather numerous perfectly typical rickettsiae were present in some of these and no growth on artificial culture media occurred with any of them.

Various parts of the embryo were studied for the occurrence of rickettsiae. No definite organisms were observed in the liver, kidney, or spleen, nor in the lining of the intestinal tract. They were present in the region of the umbilicus, but not to any greater extent than in the remainder of the membrane.

FIGURE 1.—Rickettsiae in chorio-allantoic membrane. Tenth passage. Temperature, 37.5° C. Giemsa stain. Approximately × 2,000.

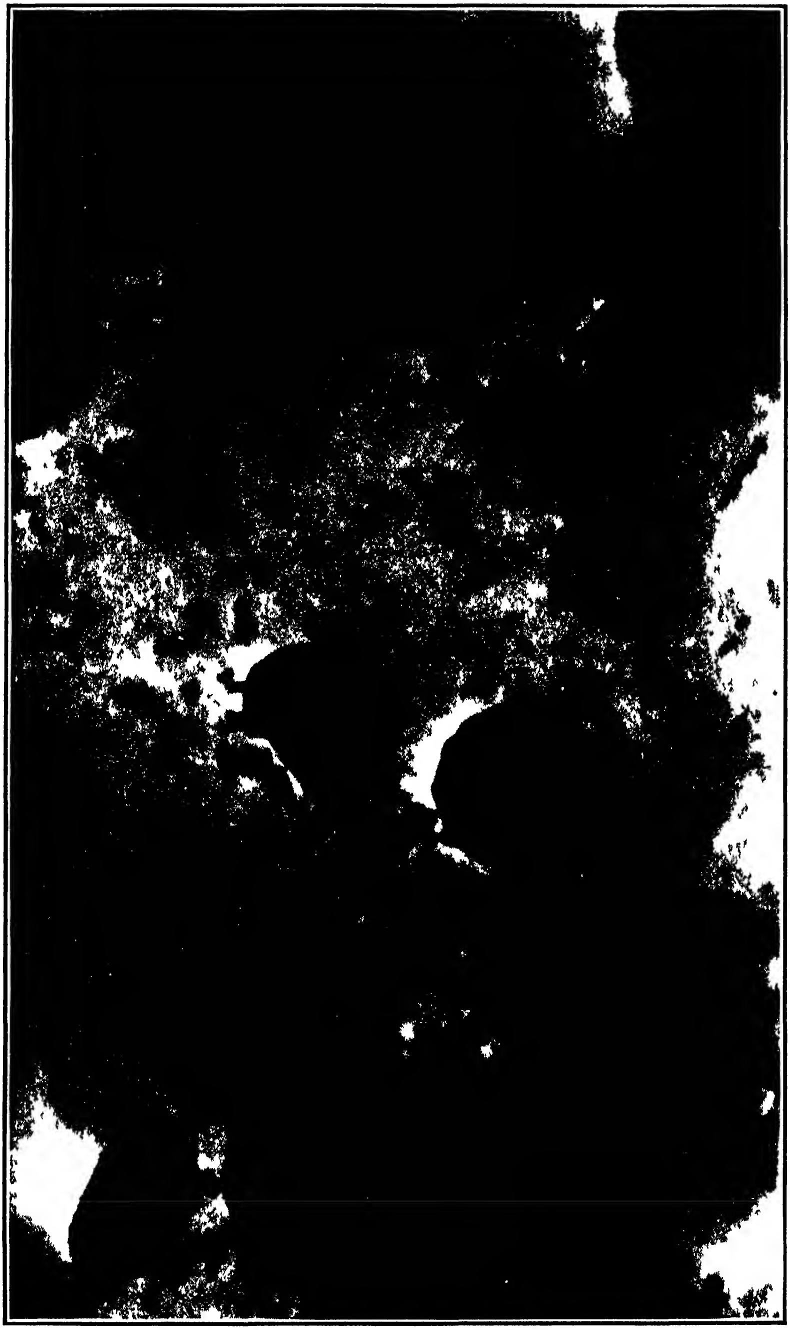

FIGURE 2.—Rickettsiae in chorio-allantoic membrane. Eighteenth passage. Temperature, 37. Giemsa stain. Approximately × 2 000

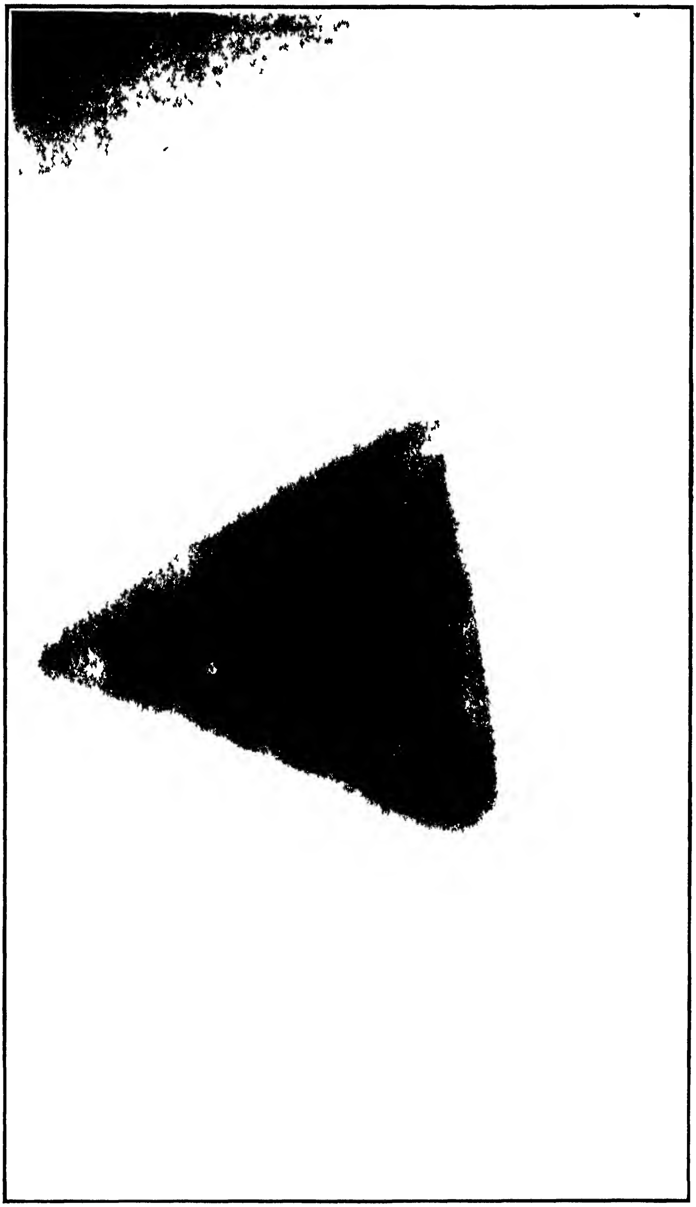

FIGURE 3 Lesion on chorio allantoic membrane Three days

The morphology of the organisms was, in general, consistent with that of typical rickettsiae. There was slight tendency to chain formation, though pairs of organisms were often seen. There was at times some variation in size and staining properties among the preparations from different embryos, but this was probably influenced to a certain extent by the condition of the embryo, i. e., whether it was in a viable or dying condition. There was also some evidence of variation in the morphology of the organism in the same preparation. A few swollen forms and gradations from these down to small coccoid forms were sometimes seen. The fact that rickettsiae were present in the generations far removed from the original material used to initiate the growth is evidence that these organisms are concerned as a causative factor in the disease.

The Giemsa stain was used throughout the study, the slides being allowed to remain in the stain over night. The organisms usually stained a bluish purple, though in some cases they were reddish. The reddish staining may have been due to the differences in the stain itself, though a buffered solution adjusted to pH 7.0 was used in the preparation of the stain.

Results of inoculation of guinea pigs with the chick embryo virus.—All guinea pigs inoculated with chick embryo material were observed carefully, and daily temperature readings were made until time of death or discharge. The records of guinea pigs inoculated during the first 20 generations are included in this discussion.

In addition to testing on guinea pigs all egg material used to inoculate new series of eggs, a number of guinea pigs were inoculated with chick embryo material for other purposes, such as for determinations of the potency of the virus at different stages, using individual and pooled specimens, determination of the length of time necessary for the virus to develop, and determination of the presence of the virus in various organs of the embryo. Fifty-seven eggs were used in the actual maintenance of the egg-passage strain for 20 generations. Material from 3 of these 57 eggs was not inoculated into guinea pigs. Specimens from the membranes from each of the remaining 54 eggs were inoculated into guinea pigs. Two guinea pigs inoculated with material from one egg in each of the fourth and ninth egg-passage generations failed to show evidence of spotted fever. The two eggs from which these inoculations were made had been incubated only 2 days after inoculation. All of the remaining 104 guinea pigs inoculated with material from 52 eggs showed evidence of spotted fever comparable to guinea pigs inoculated with the Bitterroot strain maintained continuously in guinea pigs, with the exception that the guinea pigs inoculated with material from the strain of virus carried in the eggs have shown a somewhat shorter incubation period and have died, on the average, one day earlier in the course of the disease and

the fatality rate has been 1 percent higher. As the number of guinea pigs included in the study is relatively small, the conclusion is not warranted that egg cultivation has increased the virulence of the strain for guinea pigs, although it is surely evident that no decrease in virulence has taken place.

At the time of writing this report the course of the disease has been completed in the guinea pigs inoculated with material from eggs used in the first 13 egg-passages. In these 13 generations, 80 guinea pigs developed clinical spotted fever, ending in death in 72, while 6 recovered and were later found to be immune to the Bitterroot stock strain. The remaining two guinea pigs were killed to recover material for transfer to other animals.

Two guinea pigs that had developed clinical spotted fever following inoculation with material from eggs in the fourteenth egg transfer generation and two from the fifteenth generation were killed during the course of the disease and subjected to histological examination by Dr. Lillie, who found changes diagnostic of spotted fever (*19*).

In confirmation of our observation made on guinea pigs inoculated directly with material from eggs, 2 strains were established from embryos and carried in guinea pigs for 11 passage generations in these animals. One of these strains was established by the inoculation of a part of the chorio-allantoic membrane taken from an egg in the eighth egg-passage generation, while the second strain was established from the seventh generation by the inoculation of guinea pigs with the brain of the embryo. In the study of one of these strains, 40 guinea pigs were inoculated in the course of 11 guinea pig passage generations, while 58 guinea pigs were inoculated with the second strain in 11 generations. No clinical variations were noted in the comparison of guinea pigs inoculated with either of these experimental strains with the clinical picture produced by the original Bitterroot stock strain. Each strain produced complete cross immunity with the Bitterroot strain and also produced a positive Weil-Felix reaction in rabbits. Histologic examination by Dr. Lillie showed the lesions characteristic of the disease in guinea pigs (*19*).

The potency of the virus.—The membranes, almost without exception, produced symptoms of Rocky Mountain spotted fever when inoculated into guinea pigs. Except when attempts were made to titrate the virus contained in the membranes by the use of dilutions, the guinea pigs probably received comparatively large doses.

Apparently the chick embryo is less resistant to the virus than the guinea pigs, if the length of survival after inoculation, as noted earlier, may be considered a criterion.

A test was made to determine the strength of the virus in the first generation. Approximately one-tenth of the membrane was diluted to 5 cc, and this was considered a dilution of one-tenth. Dilutions of

1/100 and 1/1000 were made from this. All guinea pigs inoculated with these dilutions developed spotted fever.

Later in the course of the work higher dilutions were tested on guinea pigs. The entire membrane was weighed, macerated with sterile sand, and made up to a volume in cubic centimeters corresponding to 10 times one-half the weight in grams, thus allowing for a 50 percent moisture content.

From the dilution of 1/10, dilutions varying from 1/100 to 1/100000 were made. Positive results were obtained in guinea pigs with the 1/10, 1/100, 1/500, and 1/1000 dilutions in the 14th generation, and with the 1/100, 1/1000 and 1/10000 dilutions in the 16th generation. In the 17th positive results were obtained in the 1/100 and 1/1000 dilutions, but not in the 1/10000 and 1/100000 dilutions. Apparently the limit of infectivity for guinea pigs was, within the limits of these experiments, about 1.0 cc of the 1/10000 dilution of the entire membrane.

SUMMARY

The virus of Rocky Mountain spotted fever was cultivated in the developing chick embryo and maintained through 20 passages without diminution in virulence for either the embryo or the guinea pigs. There was, on the other hand, some evidence of increase in virulence for the embryos, as they died earlier in the late generations. Guinea pigs inoculated with the embryo virus also developed fever earlier and died on the average 1 day earlier than when inoculated with the guinea-pig virus.

The virus was apparently more virulent for the embryos than for guinea pigs, as the embryos usually succumbed on the fifth or sixth day after inoculation, while the average length of time of survival of the guinea pigs was 7 days. The membrane was at times infective for guinea pigs in dilutions up to 1/10000. The virus was present in the brain and liver of the embryo, but the concentration of virus was lower in the brain than in the membrane.

Typical rickettsiae were present in the epithelial cells of the chorio-allantoic membrane of the embryo. The fact that rickettsiae were present in passage material far removed from the original material used for initiating growth lends support to the view that these organisms are concerned as the causative agent of the disease.

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HISTOLOGIC REACTION TO THE VIRUS OF ROCKY MOUNTAIN SPOTTED FEVER IN CHICK EMBRYOS

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The purpose of this paper is to record briefly the essential pathologic alterations found in the bodies and fetal membranes of 25 chick embryos of 12 to 19 days' incubation, taken 2 to 6 days after infection with the virus of Rocky Mountain spotted fever (Bitterroot strain).

This material was derived from the experiments concurrently reported by Bengtson and Dyer.

The chick embryos were fixed entire in Orth's bichromate formalin mixture, after opening the abdomen and skull. At first various organs were dissected out and sectioned. On account of the extremely soft consistency of the fetal brain, this procedure was found impractical, and consequently a number of cross sections of the entire head were made. As these proved satisfactory and included also skin, bone marrow, pharynx, and other structures, a similar procedure was applied to the trunk organs. One cross section was made through the chest to show heart and lungs, another through the upper abdomen, showing liver, spleen, mesonephros and metanephros, and a third through the lower abdomen showing gizzard, intestines, metanephros, and cloaca. These sections also showed vertebrae, spinal cord, ganglia, ribs, muscles, and skin.

Paraffin sections were prepared and stained by our buffered Romanowsky stain and with iron chloride hematoxylin (Weigert) and picrofuchsin (Van Gieson).

Nine chick embryos of about the same age were used as control material. Eight inoculated with typhus virus and four with the virus of lymphocytic choriomeningitis were also used for comparison.

Two 18-day chick embryos from the fourth virus passage generation, killed 6 days after inoculation, showed essentially no lesions in the viscera, except for a slight lymphocyte infiltration of the chorioid plexi of the brain in one, and only a moderate edema and a patchy, rather sparse pseudoeosinophil leucocyte infiltration in the chorio-allantois.

Lesions within the embryos began to appear in the ninth or tenth passage generation, and in subsequent passages, including the seventeenth, have remained fairly constant.

Generally the chorio-allantois at the site of inoculation has shown a more or less marked edema accompanied by focal interstitial and perivascular infiltration by lymphocytes, a rather conspicuous focal fibroblast proliferation proceeding from one side of vessels, and a patchy, diffuse, sparse to moderate infiltration by polymorphonuclear leucocytes. Focal hemorrhages were infrequent, and endothelial proliferation, swelling, necrosis, and vascular thrombosis were rare. As irregular edema, patchy leucocyte infiltration, and clumps of lymphocytes and myelocytes occurred also in uninfected control chicks, the significant features appear to be the vascular adventitial proliferation and lymphocyte infiltration and the occasional endovascular lesions.

Occasional clumps of myelocytes were found in the derma of the head region in control birds, and the skin elsewhere showed no focal infiltration. In chicks infected with spotted fever there was usually a focal perivascular infiltration by lymphocytes, more marked in the skin of the head than on the trunk. Proliferative changes, either adventitial or intimal, were not seen.

The pharyngeal mucosa also often showed a more or less dense, patchy infiltration by lymphoid cells, which was absent in controls. In the mucosae of the esophagus and proventriculus, patches of infiltration by lymphoid cells and, often, myelocytes as well, were often seen. As clumps of myelocytes were occasionally found in this location in control birds, this finding represents a quantitative increase rather than a qualitative change. The mucosae of the gizzard and small intestine generally showed no lesions. In the three birds in which sections of the cloaca were obtained, its mucosa was packed with myelocytes or large lymphoid or promyeloid cells, suggesting an area of normal or possibly exaggerated myelopoietic activity.

In somewhat over half of the birds the muscularis of the gizzard showed a focal perivascular lymphocyte infiltration which was absent in control material. The muscular layers of other portions of the gastrointestinal tract showed no focal lesions.

The serosa of the stomach and intestines and the mesentery contained clumps or nodules of lymphocyte infiltration in about one-

third of the birds. As similar nodules are occasionally seen in supposedly normal controls, this finding is of less significance, but apparently represents a definite increase.

The liver almost regularly showed a slight to moderate periportal lymphocyte infiltration, occasionally with some admixture of myelocytes. In control birds this finding was unusual.

In control birds the spleen pulp was usually packed with granular myelocytes, occasionally with both promyelocytes and granulocytes. In spotted fever the spleen tended to be somewhat enlarged (11.3 mm^2 as compared with 4.0 mm^2 in cross-section area). Its pulp was generally quite cellular. The cell content was largely granular myelocytes in about half of the birds and mixed or predominantly of large lymphoid or promyeloid cells in the remainder. Some apparent swelling of the pulp reticulo-endothelium was evident in about one-third of the birds; and in one, small fibrin thrombi were scattered through the pulp.

The pancreas usually showed a moderate interstitial infiltration by granular myelocytes and large lymphoid cells in varying proportions, on the average about equal. In normal control material no infiltration was seen, and in the other conditions under study the infiltration was less frequent and less marked and tended to be purely myelocytic.

The bone marrow of the vertebrae, ribs, and skull was usually more or less densely cellular and showed a marked and extensive replacement of granular myelocytes by deeply basophilic lymphoid and promyeloid cells, and the remaining granular myelocytes showed much more cytoplasmic basophilia than normal. In the normal controls and in the embryos infected with typhus and with lymphocytic choriomeningitis virus, the marrow was composed largely of granular myelocytes.

In about one-fourth of the birds small foci of perivascular lymphocyte infiltration were found in the skeletal muscles. These foci were absent in the controls.

In the mesonephroi and metanephroi there were often foci of interstitial and perivascular lymphocyte infiltration. These were somewhat more frequent in the mesonephros than in the kidney. None of the control material, normal or otherwise, showed such foci.

In about half of the chicks small foci of interstitial or perivascular infiltration by lymphocytes, occasionally also a few myelocytes or leucocytes, were seen in the myocardium, epicardium, or both. No such foci were encountered in any of the control material.

In normal chicks the lungs regularly show nodules and clumps of granular myelocytes in their mesenchymal stroma. In spotted fever this infiltration is usually similar or more often more marked in extent. The cells of the infiltration were sometimes predominantly granular myelocytes, more often predominantly or purely lymphoid

or nongranular promyeloid cells, and in about half approximately equal proportions were present.

The brain cord and cerebral and spinal root ganglia usually showed no focal lesions. One focus of perivascular lymphocyte infiltration was seen in the brain of one chick. In about half of the chicks the chorioid plexi presented foci of lymphocyte infiltration. One normal and one diseased control animal showed single clumps of myelocytes in the chorioid plexi; the others showed no lesions. In about one-third of the birds the cerebral meninges contained clumps of lymphocytes. None were seen in normal controls.

SUMMARY

The focal lesions of Rocky Mountain spotted fever in chick embryos are as follows: (1) Perivascular or interstitial infiltration by lymphocytes, occurring in the fetal membranes, skin, muscles, kidneys, Wolffian bodies, heart, liver, serosae of the gastrointestinal tract, gizzard muscle, meninges, and chorioid plexi; (2) focal adventitial fibroblast proliferation of vessels, vascular endothelial swelling, and occasional vascular thrombonecroses, occurring only in the fetal membranes.

Other changes were exaggeration of normal myeloid collections in the lungs and proventricular mucosa, occurrence of these in the pancreas and a tendency to replacement of granular myelocytes in these collections and in the spleen pulp and bone marrow by nongranular promyeloid and lymphoid cells.

COURT DECISION ON PUBLIC HEALTH

Town can be held to respond in damages for injuries resulting from disrepair of septic tank.—(Mississippi Supreme Court, Division B; *Hodges et ux.* v. *Town of Drew*, 159 So. 298; decided Feb. 11, 1935.) An action was brought by the plaintiffs, husband and wife, against the town of Drew to recover damages for injuries to the plaintiffs' health and comfort and to their land, alleged to have been caused by the improper and negligent maintenance by the defendant of its septic tank. The trial court, at the conclusion of the evidence, directed a verdict for the defendant, and the plaintiffs appealed.

The evidence for the plaintiffs showed that the town had permitted the septic tank to fall into disrepair to such an extent that sewage overflowed and contaminated the surrounding land and the waters of a nearby lake. The septic tank and the lake, in part, were situated on the plaintiffs' farm. Offensive and nauseating odors were emitted by the overflowing sewage. The town sought to justify the directed

verdict on the grounds (*a*) that the evidence failed to show that the plaintiffs suffered any peculiar or special damage on account of the maintenance of the nuisance not common to the general public, and (*b*) that in the construction and maintenance of the waterworks system, including the septic tank, the town was in the exercise of one of its police powers, that of conserving the public health, which was a governmental function, in the exercise of which, although wrongful, the town was not liable for damage to property. The supreme court rejected both of these contentions, reversed the judgment, and remanded the cause.

DEATHS DURING WEEK ENDED OCT. 5, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 5, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,103	7,054
Deaths per 1,000 population, annual basis	10.0	9.9
Deaths under 1 year of age	463	501
Deaths under 1 year of age per 1,000 estimated live births	43	47
Deaths per 1,000 population, annual basis, first 40 weeks of year	11.4	11.4
Data from industrial insurance companies:		
Policies in force	67,681,475	67,062,013
Number of death claims	10,858	11,743
Death claims per 1,000 policies in force, annual rate	8.4	9.1
Death claims per 1,000 policies, first 40 weeks of year, annual rate	9.7	10.0

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended Oct. 12, 1935, and Oct. 13, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 12, 1935, and Oct. 13, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934
New England States:								
Maine	2	1	1		21	6	0	0
New Hampshire	2					5	0	0
Vermont	1	1			6		0	0
Massachusetts	2	13			24	12	1	2
Rhode Island		2			9	3	0	0
Connecticut	7	2	2	1	37	18	1	1
Middle Atlantic States:								
New York	26	25	[1] 6	[1] 9	66	52	7	1
New Jersey [2]	15	12	4	7	10	2	2	0
Pennsylvania	36	51			48	125	4	2
East North Central States:								
Ohio	39	74	40	26	35	57	2	1
Indiana	119	36	17	15	3	44	2	4
Illinois	67	65	13	6	9	37	6	0
Michigan	18	16	5		17	32	3	0
Wisconsin	3	8	34	8	33	56	1	0
West North Central States:								
Minnesota	12	1			13	33	6	0
Iowa	7	9	4		1	48	1	3
Missouri	57	78	34	56	14	49	1	2
North Dakota	2	1				51	0	0
South Dakota	1				1	13	1	0
Nebraska	7	4			1	4	0	0
Kansas	8	19		3	3	30	0	0
South Atlantic States:								
Delaware					9		1	0
Maryland [3]	9	13	2	8	2	10	6	0
District of Columbia	20	10		2	1	1	3	0
Virginia	72	89			3	22	1	1
West Virginia	68	81	15	14	11	34	0	1
North Carolina	78	133	4	6	2	20	0	0
South Carolina	13	10	166	132	1	1	0	0
Georgia [3]	30	32					0	0
Florida	12	11	2		3	1	1	0
East South Central States:								
Kentucky	57	75	10		15	27	0	0
Tennessee	55	49	19	11		8	3	1
Alabama [3]	44	92	10	22	4	12	0	0
Mississippi	16	20					0	2
West South Central States:								
Arkansas	29	14	17	9		1	0	0
Louisiana	14	22	3	3	3	1	0	1
Oklahoma [4]	11	10	32	26		1	4	0
Texas [3]	63	44	64	90	1	23	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 12, 1935, and Oct. 13, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934
Mountain States:								
Montana	2	1	21	2	16	32	1	0
Idaho	1	2	4	3	3		0	0
Wyoming	3	2			13	1	0	0
Colorado	15	11			11	18	1	0
New Mexico	8	1	2		2	27	0	0
Arizona	1	2	31	1	1	2	1	0
Utah [2]					3	2	0	0
Pacific States:								
Washington		1			50	67	0	1
Oregon			13	28	95	7	0	0
California	47	31	20	26	123	36	1	0
Total	1099	1,174	595	514	723	1,031	61	24
First 41 weeks of year	24698	26,739	107576	52,913	700371	674,351	4655	1,853

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct 12, 1935	Week ended Oct. 13, 1934	Week ended Oct 12, 1935	Week ended Oct. 13, 1934	Week ended Oct 12, 1935	Week ended Oct 13, 1934	Week ended Oct 12, 1935	Week ended Oct. 13, 1934
New England States:								
Maine	13	2	15	18	0	0	0	7
New Hampshire	3	0	1	25	0	0	0	1
Vermont	6	0	6	6	0	0	1	0
Massachusetts	52	4	98	81	0	0	4	5
Rhode Island	13	0	9	4	0	0	0	0
Connecticut	18	0	24	16	0	0	1	0
Middle Atlantic States:								
New York	71	11	219	179	0	0	12	15
New Jersey [2]	24	0	46	45	0	0	7	8
Pennsylvania	1	8	152	197	0	0	27	36
East North Central States:								
Ohio	5	26	210	318	1	0	27	23
Indiana	4	2	101	81	0	1	11	0
Illinois	16	11	381	282	1	0	24	44
Michigan	29	21	90	106	0	0	7	11
Wisconsin	0	7	189	287	11	8	2	6
West North Central States:								
Minnesota	3	9	158	49	3	14	2	1
Iowa	2	2	49	44	10	1	11	20
Missouri	1	3	77	101	0	0	15	22
North Dakota	0	1	26	45	0	1	0	2
South Dakota	2	3	13		1	1	0	0
Nebraska	1	1	16	16	3	0	2	0
Kansas	2	3	61	62	1	0	4	10
South Atlantic States:								
Delaware	0	0	7	5	0	0	2	4
Maryland [2]	6	0	58	61	0	0	18	16
District of Columbia	4	0	11	17	0	0	3	2
Virginia	1	1	59	101	0	0	16	11
West Virginia	0	4	99	117	0	0	17	33
North Carolina	9	2	59	109	1	0	20	6
South Carolina	0	0	14	6	0	0	14	1
Georgia [2]	3	2	31	17	1	0	8	18
Florida	0	0	1	5	0	0	1	0
East South Central States:								
Kentucky	11	5	104	84	0	3	34	29
Tennessee	1	4	106	56	0	1	24	12
Alabama [3]	1	1	16	23	0	0	3	16
Mississippi	2	1	23	15	0	0	6	5
West South Central States:								
Arkansas	0	0	16	9	0	1	8	5
Louisiana	4	0	11	13	0	0	13	13
Oklahoma [4]	0	0	19	6	1	0	12	9
Texas [3]	2	8	37	20	0	2	21	28

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 12, 1935, and Oct. 13, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934	Week ended Oct. 12, 1935	Week ended Oct. 13, 1934
Mountain States:								
Montana	0	5	39	19	0	0	5	6
Idaho	0	1	21	1	0	0	5	1
Wyoming	0	0	21	7	9	0	0	3
Colorado	1	0	59	45	0	0	9	11
New Mexico	0	0	9	13	0	0	12	5
Arizona	0	4	8	23	0	0	2	2
Utah [2]	1	0	36	11	0	0	1	1
Pacific States:								
Washington	0	39	33	42	5	28	8	4
Oregon	1	7	39	35	0	2	2	6
California	26	42	140	142	0	0	14	13
Total	379	240	3017	2,967	48	63	435	471
First 41 weeks of year	9292	6,294	194715	162,504	5565	3,961	14509	17,023

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Typhus fever, week ended October 12, 1935, 21 cases, as follows: Georgia, 15; Alabama, 4; Texas, 2.
[4] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

Georgia	1	133	58	507	2	16	3	53	0	101
Indiana	8	177	93	5	19		10	229	1	61
Massachusetts	7	19		2	51	2	538	218	0	14
Nebraska	1	24	1		10		2	63	10	3
New Mexico		24	5	26	2	2	1	18	0	65
Vermont					35		27	14	0	4
Wyoming		1			27		1	21	5	2

September 1935

	Cases
Anthrax:	
Georgia	2
Chicken pox:	
Arkansas	5
Georgia	2
Indiana	33
Massachusetts	99
Nebraska	6
New Mexico	11
Vermont	31
Wyoming	24
Conjunctivitis:	
Georgia	1
New Mexico	2
Dengue:	
Georgia	8
Dysentery:	
Georgia (amoebic)	8
Georgia (bacillary)	4
Massachusetts (amoebic)	2
Massachusetts (bacillary)	7
New Mexico (amoebic)	5
New Mexico (bacillary)	1
New Mexico (unspecified)	13
Epidemic encephalitis:	
Massachusetts	2
New Mexico	1
German measles:	
Massachusetts	46
New Mexico	1
Vermont	10

September 1935—Continued

	Cases
Hookworm disease:	
Georgia	270
Lead poisoning:	
Massachusetts	2
Mumps:	
Arkansas	42
Georgia	37
Indiana	17
Massachusetts	215
Nebraska	9
New Mexico	34
Vermont	21
Wyoming	1
Ophthalmia neonatorum:	
Massachusetts	76
New Mexico	1
Paratyphoid fever:	
Georgia	3
New Mexico	2
Puerperal septicemia:	
New Mexico	1
Rabies in animals:	
Indiana	57
Massachusetts	5
Screw-worm infection:	
Georgia	2
Septic sore throat:	
Georgia	16
Massachusetts	11

September 1935—Continued

	Cases
Septic sore throat—Con.	
New Mexico	1
Wyoming	2
Tetanus:	
Massachusetts	3
Trachoma:	
Massachusetts	3
Trichinosis:	
Georgia	1
Massachusetts	3
Tularaemia:	
Georgia	1
Typhus fever:	
Georgia	81
Undulant fever:	
Georgia	10
Massachusetts	3
Vermont	1
Vincent's infection:	
Wyoming	1
Whooping cough:	
Arkansas	29
Georgia	27
Indiana	123
Massachusetts	254
Nebraska	15
Mew Mexico	39
Vermont	56
Wyoming	40

CASES OF VENEREAL DISEASES REPORTED FOR AUGUST 1935

These reports are published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State and city health officers. They are preliminary and are therefore subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

Reports from States

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	858	3.17	470	1.73
Arizona	39	.85	134	2.93
Arkansas	506	2.70	288	1.54
California	1,405	2.28	1,531	2.49
Colorado [1]				
Connecticut	192	1.16	131	.79
Delaware [2]	48	1.98	23	.95
District of Columbia	178	3.58	162	3.26
Florida	278	1.77	80	.51
Georgia	1,289	4.43	692	2.38
Idaho	0	0	0	0
Illinois	1,165	1.48	1,240	1.57
Indiana	257	.78	272	.82
Iowa [2]	105	.42	176	.71
Kansas	103	.54	105	.55
Kentucky	203	.76	307	1.38
Louisiana [2]	180	.83	122	.56
Maine	50	.62	54	.67
Maryland	823	4.93	281	1.68
Massachusetts [3]				
Michigan	496	.97	632	1.24
Minnesota	409	1.57	422	1.62
Mississippi	1,258	6.12	2,071	10.07
Missouri [3]				
Montana [2]	46	.86	65	1.21
Nebraska	29	.21	67	.48
Nevada [1]				
New Hampshire	27	.57	33	.70
New Jersey	691	1.63	350	.83
New Mexico [2]	32	.73	49	1.12
New York [2]	3,156	2.42	1,003	.77
North Carolina	1,429	4.33	465	1.41
North Dakota	20	.29	82	1.10
Ohio [2]	499	.73	223	.33
Oklahoma [2]	184	.74	189	.76
Oregon	75	.76	151	1.53
Pennsylvania	251	.26	238	.24
Rhode Island	110	1.56	82	1.16
South Carolina [2]	317	1.81	488	2.79
South Dakota	5	.07	45	.64
Tennessee	1,077	4.02	569	2.13
Texas	303	.50	224	.37
Utah [1]				
Vermont	23	.64	48	1.33
Virginia	561	2.29	371	1.52
Washington	133	.83	168	1.04
West Virginia	325	1.82	145	.81
Wisconsin [4]	22	.07	181	.60
Wyoming [1]				
Total	19,157	1.64	14,489	1.24

[1] Not reporting.
[2] Incomplete.
[3] Has been reporting regularly but no report received for current month.
[4] Only cases of syphilis in the infectious stage are reported.

Reports from cities of 200,000 population or over

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Akron, Ohio	15	0.55	19	0.70
Atlanta, Ga	188	6.55	128	4.46
Baltimore, Md	520	6.30	181	2.19
Birmingham, Ala	127	4.50	78	2.76
Boston, Mass	192	2.43	226	2.86
Buffalo, N. Y	199	3.36	108	1.82
Chicago, Ill	675	1.89	876	2.46
Cincinnati, Ohio	67	1.44	57	1.22
Cleveland, Ohio	213	2.29	111	1.19
Columbus, Ohio	8	.26	0	0
Dallas, Tex	107	3.69	37	1.28
Dayton, Ohio	6	.29	0	0
Denver, Colo	15	.51	3	.10
Detroit, Mich	196	1.13	365	2.10
Houston, Tex.[5]	163	4.87	39	1.16
Indianapolis, Ind	80	2.12	45	1.19
Jersey City, N. J.[6]	--	--	--	--
Kansas City, Mo	41	.97	13	.31
Los Angeles, Calif.[6]	--	--	--	--
Louisville, Ky	145	4.48	336	10.37
Memphis, Tenn	186	6.97	59	2.21
Milwaukee, Wis	4	.07	16	.26
Minneapolis, Minn	96	1.97	150	3.08
Newark, N. J.[6]	--	--	--	--
New Orleans, La.[1]	--	--	--	--
New York, N. Y	3,146	4.31	1,003	1.37
Oakland, Calif	37	1.22	50	1.65
Omaha, Nebr	13	.59	10	.45
Philadelphia, Pa	319	1.61	73	.37
Pittsburgh, Pa	51	5	35	.51
Portland, Oreg	52	1.66	104	3.31
Providence, R. I	52	2.01	49	1.89
Rochester, N. Y	48	1.42	7	.21
St. Louis, Mo	596	7.13	230	2.75
St. Paul, Minn	38	1.35	42	1.49
San Antonio, Tex.[1]	--	--	--	--
San Francisco, Calif	151	2.25	164	2.45
Seattle, Wash	83	2.19	102	2.69
Syracuse, N. Y	19	.87	40	1.84
Toledo, Ohio	53	1.74	40	1.31
Washington, D. C.[7]	178	3.58	162	3.26

[1] Not reporting.
[5] Data for Jefferson Davis (city-county) hospital only; physicians of Houston are not compelled to report venereal diseases.
[6] No report for this month.
[7] Reported by Social Hygiene Clinic.

WEEKLY REPORT FROM CITIES

City reports for week ended Oct. 5, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	1	0	0	2	2	0	0	0	9	22
New Hampshire:											
Concord	1	------	0	0	0	0	0	0	0	0	11
Manchester	0	------	0	0	0	0	0	1	0	0	3
Nashua	0	------	0	0	------	0	0	------	0	0	------
Vermont:											
Barre	0	------	0	0	0	0	0	0	0	0	0
Burlington	0	------	0	0	0	0	0	0	0	0	4
Rutland	1	------	0	0	0	1	0	0	0	3	2
Massachusetts:											
Boston	0	------	0	4	17	14	0	4	0	11	184
Fall River	0	------	0	0	0	0	0	1	0	2	24
Springfield	0	------	0	0	0	6	0	1	0	2	29
Worcester	0	------	0	0	2	18	0	3	3	0	35
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	12
Providence	2	------	0	[1] 62	2	3	0	1	0	[1] 15	61
Connecticut:											
Bridgeport	1	1	0	0	0	4	0	1	0	0	28
Hartford	0	------	0	0	2	3	0	0	0	3	38
New Haven	0	------	0	0	0	2	0	2	0	8	29
New York:											
Buffalo	0	------	1	5	10	17	0	4	0	15	124
New York	28	7	2	22	79	63	0	84	11	115	1,231
Rochester	0	------	0	0	3	4	0	1	0	6	53
Syracuse	0	------	0	0	6	4	0	1	0	12	48
New Jersey:											
Camden	0	------	0	0	4	4	0	2	5	1	31
Newark	0	3	0	1	2	6	0	7	0	21	85
Trenton	0	------	0	1	0	3	0	3	0	2	30
Pennsylvania:											
Philadelphia	4	2	2	7	20	45	0	19	13	47	404
Pittsburgh	4	1	1	1	14	19	0	5	1	15	127
Reading	0	------	0	0	2	0	0	0	0	0	18
Scranton	0	------	------	0	------	3	0	------	0	0	------
Ohio:											
Cincinnati	12	------	1	1	4	10	0	6	0	6	124
Cleveland	0	18	0	4	11	9	0	15	2	51	160
Columbus	9	------	0	2	3	15	0	2	1	1	84
Toledo	0	2	2	1	3	4	0	5	0	3	73
Indiana:											
Anderson	1	------	0	0	0	0	0	0	0	0	8
Fort Wayne	11	------	0	0	2	7	0	0	0	1	27
Indianapolis	5	------	0	0	8	16	0	2	0	3	100
South Bend	1	------	1	0	2	2	0	0	0	2	18
Terre Haute	0	------	0	0	0	1	0	0	0	0	30
Illinois:											
Alton	2	------	0	0	1	3	0	0	0	0	10
Chicago	9	6	0	7	23	80	0	34	3	97	601
Elgin	0	------	0	0	1	0	0	0	0	0	8
Moline	0	------	0	0	0	0	0	0	0	0	12
Michigan:											
Detroit	14	5	0	4	12	14	0	11	3	73	207
Flint	1	------	0	0	0	5	0	0	1	0	25
Grand Rapids	0	------	0	2	2	6	0	1	0	2	32
Wisconsin:											
Kenosha	0	------	0	1	0	7	0	0	0	2	9
Milwaukee	0	------	0	0	2	31	0	3	0	56	------
Racine	0	------	0	0	0	16	0	0	0	4	13
Superior	0	------	0	0	1	0	0	0	0	0	3
Minnesota:											
Duluth	0	------	0	0	0	2	0	1	0	0	22
Minneapolis	8	------	0	2	10	33	0	1	0	7	95
St. Paul	0	1	1	0	5	8	0	4	0	7	73
Iowa:											
Cedar Rapids	0	------	0	0	0	0	0	0	0	0	0
Davenport	0	------	------	0	------	2	0	------	0	0	------
Des Moines	4	------	------	0	------	1	0	------	0	0	33
Sioux City	0	------	------	0	------	3	0	------	0	3	------
Waterloo	2	------	------	0	------	4	0	------	0	0	------

[1] Including delayed reports.

City reports for week ended Oct. 5, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Missouri:											
Kansas City	4	------	0	0	9	2	0	6	1	0	75
St. Joseph	6	------	0	0	1	4	0	0	0	0	20
St. Louis	9	2	------	0	4	14	0	3	2	4	227
North Dakota:											
Fargo	2	------	0	1	0	3	0	1	0	1	7
Grand Forks	0	------	------	2	------	1	0	------	0	0	------
Minot	0	------	0	0	0	0	0	0	0	0	8
South Dakota:											
Aberdeen	0	------	------	0	------	2	0	------	0	0	------
Nebraska:											
Omaha	2	------	0	0	4	10	0	1	0	0	53
Kansas:											
Lawrence	0	------	0	0	1	0	0	0	0	0	2
Topeka	0	------	0	0	0	1	0	0	0	2	8
Wichita	0	------	0	1	2	6	0	1	1	0	21
Delaware:											
Wilmington	0	------	0	0	3	0	0	2	0	0	18
Maryland:											
Baltimore	3	3	1	0	14	10	0	9	2	13	194
Cumberland	1	------	0	0	0	1	0	0	1	0	7
Frederick	0	------	0	0	0	0	0	1	0	0	5
Dist. of Columbia:											
Washington	10	------	0	0	5	6	0	13	2	3	138
Virginia:											
Lynchburg	4	------	0	0	0	1	0	0	0	1	9
Norfolk	0	------	0	0	2	0	0	2	0	1	36
Richmond	0	------	0	0	1	2	0	1	1	0	43
Roanoke	6	------	0	0	2	4	0	0	0	0	18
West Virginia:											
Charleston	4	------	0	1	1	3	0	0	0	0	28
Huntington	7	------	------	0	------	13	0	------	0	0	------
Wheeling	0	------	0	0	5	0	0	0	0	0	24
North Carolina:											
Gastonia	1	------	0	0	0	1	0	0	0	0	4
Raleigh	0	------	0	0	0	0	0	1	0	0	20
Wilmington	0	------	0	0	0	0	0	0	0	1	13
Winston-Salem	2	------	0	0	1	2	0	1	1	0	8
South Carolina:											
Charleston	0	7	0	0	1	0	0	2	2	0	18
Columbia	------	------	------	------	------	------	------	------	------	------	------
Greenville	0	------	0	0	2	0	0	0	1	0	26
Georgia:											
Atlanta	7	4	0	0	4	12	0	3	0	6	67
Brunswick	0	------	0	0	1	0	0	0	0	0	4
Savannah	4	------	0	0	4	3	0	2	0	2	33
Florida:											
Miami	0	------	0	0	3	0	0	0	0	4	28
Tampa	6	------	0	0	2	0	0	1	0	5	23
Kentucky:											
Ashland	4	------	------	0	------	2	0	------	1	0	------
Covington	1	------	0	0	1	4	0	1	0	0	3
Lexington	2	------	0	0	2	1	0	2	0	0	18
Louisville	2	1	0	0	4	10	0	5	2	3	80
Tennessee:											
Knoxville	4	------	0	0	0	3	0	1	1	1	26
Memphis	0	------	0	0	4	1	0	3	4	4	74
Nashville	2	------	0	1	3	2	0	1	1	0	43
Alabama:											
Birmingham	1	------	0	0	3	3	0	10	3	0	53
Mobile	6	2	0	0	2	0	0	0	0	0	22
Montgomery	1	------	------	0	------	0	0	------	0	0	------
Arkansas:											
Fort Smith	2	------	------	0	------	0	0	------	0	0	------
Little Rock	0	------	0	0	2	2	0	1	0	0	6
Louisiana:											
Lake Charles	0	------	0	0	0	1	0	0	0	0	5
New Orleans	5	1	1	0	8	1	0	6	0	0	136
Shreveport	0	------	0	0	5	2	0	0	0	0	27
Oklahoma:											
Oklahoma City	1	10	0	0	1	7	0	1	0	0	40
Texas:											
Dallas	7	1	1	0	4	4	0	2	0	1	51
Fort Worth	7	------	0	0	3	6	0	0	1	1	30
Galveston	0	------	0	0	1	0	0	0	0	0	6
Houston	7	------	1	0	2	2	0	8	1	0	57
San Antonio	1	------	0	0	4	2	0	6	1	0	65

City reports for week ended Oct. 5, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Montana:											
Billings	0	------	0	0	0	1	0	0	1	1	9
Great Falls	0	------	0	0	0	5	0	0	0	3	[illegible]
Helena	0	------	0	0	0	0	0	0	1	0	1
Missoula	0	------	0	0	0	22	0	0	0	0	8
Idaho:											
Boise	0	------	0	0	0	0	0	0	0	0	16
Colorado:											
Colorado Springs	0	------	0	0	0	3	0	1	1	3	8
Denver	1	------	0	2	8	7	0	7	3	9	84
Pueblo	0	------	0	0	1	5	0	0	0	0	6
New Mexico:											
Albuquerque	2	------	0	0	1	1	0	2	1	0	14
Utah:											
Salt Lake City	0	------	0	0	1	17	0	0	2	12	36
Nevada:											
Reno	0	------	0	0	0	0	0	0	0	0	1
Washington:											
Seattle	0	------	--------	0	12	5	0	4	1	[illegible]	--------
Spokane	0	------	--------	2	4	2	0	------	0	3	29
Tacoma	0	------	0	2	0	3	0	0	0	0	28
Oregon:											
Portland	0	2	1	1	1	13	0	4	0	0	80
Salem	0	------	--------	0	------	3	0	------	0	1	--------
California:											
Los Angeles	7	12	0	12	11	31	0	15	12	14	251
Sacramento	2	------	0	3	0	4	0	1	3	0	23
San Francisco	3	------	0	19	3	5	0	8	0	19	140

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases
Maine:			
Portland	0	0	1
Massachusetts:			
Boston	2	1	38
Fall River	0	0	6
Springfield	1	1	0
Rhode Island:			
Providence	0	0	10
Connecticut:			
Bridgeport	0	0	4
Hartford	0	0	2
New Haven	0	0	2
New York:			
New York	2	1	65
Syracuse	0	0	3
New Jersey:			
Newark	0	0	3
Pennsylvania:			
Philadelphia	1	1	4
Pittsburgh	0	0	1
Ohio:			
Columbus	0	0	1
Toledo	0	0	2
Illinois:			
Chicago	1	0	8
Michigan:			
Detroit	0	0	9
Wisconsin:			
Milwaukee	1	0	0
Minnesota:			
Minneapolis	0	0	2
Missouri:			
Kansas City	1	0	0
St. Louis	1	0	0
Kansas:			
Wichita	1	0	0
Maryland:			
Baltimore	2	1	3
District of Columbia:			
Washington	2	1	5
Virginia:			
Lynchburg	1	0	0
Norfolk	0	0	1
South Carolina:			
Charleston	0	0	1
Kentucky:			
Louisville	0	0	3
Arkansas:			
Little Rock	0	1	0
Louisiana:			
Shreveport	0	1	0
Oklahoma:			
Oklahoma City	0	0	1
Texas:			
Dallas	0	1	0
Colorado:			
Pueblo	1	0	0
Oregon:			
Portland	2	1	0
California:			
Los Angeles	1	0	11
Sacramento	0	0	3

Epidemic encephalitis.—Cases: Philadelphia, 1; Indianapolis, 1; Chicago, 1; St. Paul 1.
Pellagra.—Cases: Alton, Ill., 1; Birmingham, 1.
Typhus fever.—Cases: Charleston, S. C., 1; Atlanta, 1.

FOREIGN AND INSULAR

CUBA

Habana—Communicable diseases—4 weeks ended September 28, 1935.—During the 4 weeks ended September 28, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	4	1	Tuberculosis	36	7
Malaria	[1] 62		Typhoid fever	[1] 66	3

[1] Includes imported cases.

Provinces—Notifiable diseases—4 weeks ended September 21, 1935.—During the 4 weeks ended September 21, 1935, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer	1	2		7	1		11
Diphtheria		1		[illegible]		1	4
Hookworm disease				3			3
Leprosy		1		1		14	16
Malaria	887	45	12	752	562	571	2,829
Measles		2	2	3	4		11
Poliomyelitis				4	3	1	8
Tetanus, infantile				1			1
Tuberculosis	3	30	18	36	25	38	150
Typhoid fever	4	53	14	52	67	11	201

FRANCE

Marseille—Plague.—A report dated October 15, 1935, states that 2 cases of bubonic plague were reported at Marseille from the French steamship *Ipanema* on the regular run to Philippeville and Bone. Several plague-infected rats were reported found on board the vessel.

JAMAICA

Communicable diseases—4 weeks ended October 5, 1935.—During the 4 weeks ended October 5, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	1	9	Puerperal fever		1
Dysentery	32	4	Scarlet fever	1	1
Erysipelas		1	Tuberculosis	45	101
Leprosy		2	Typhoid fever	16	99

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service American consuls International Office of Public Hygiene Pan American Sanitary Bureau health section of the League of Nations, and other sources The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given

CHOLERA

[C indicates cases, D, deaths P present]

Place		Feb 24–Mar 30 1935	Mar 31–Apr 27, 1935	Apr 28–May 25 1935	May 26–June 29 1935	Week ended— July 1935: 6	13	20	27	August 1935: 3	10	17	24	31	September 1935: 7	14	21	28
Ceylon																		
Colombo	C	5																----
	D	3																----
China																		
Amoy	C					1												----
Canton	C			1														----
Swatow	C			2														---
India	C	20 283	23 104	19 176	24 379	4 362	5 378	7 032	8 722	9 684	10 691	10 899						
	D	10 234	12 660	10 447	13 840	2 288	2 924	3 751	4 323	5 290	5 768	5 625						
Assam	C	330	2 038	2 405	1 212	92	75	57	26	32	261	562	440	411	228	126	120	111
	D	169	1 204	1 465	646	47	53	26	20	12	121	241	263	234	116	66	62	42
Bassein	C	4	21	22	4													
	D	2	14	20	1													
Bombay Presidency	C	234	146	232	216	130	209	353	636	1 039	1 145	1 390	1 171	1 491				
	D	98	66	107	84	54	94	128	252	434	524	589	479	661				
Bombay	C	6	1				4	1	2	2			1	3			2	1
Calcutta	C	838	782	825	704	191	164	94	73	56	51	36	39	34	30	36	36	17
Chittagong	C	14	19	34	29	2	1	3	2		4	11	1	1				
Cochin	D													1		2	1	8
Madras Presidency	C	3 738	2 432	1 468	2 583	542	596	749	1 085	1 652	1 536							-
	D	1 927	1 215	782	1,162	222	271	335	436	707	606							-
Madras	C	3	2		15	4	12	23	45	63	23	12	18	21	9	8	6	8
	D	1			5	2		6	15	23	13	5	7	9	5	2	6	2
Moulmein	C	8	6	1	18					1								--
Negapatam	C	14	10															----
Northwest Frontier Province	C													80	173	113	52	----
	D													36	87	48	39	----
Punjab	C			5	142	38	96	90	28	10	86	142	155	123	176	73	33	----
Rangoon	C	9	16	11	6		2	11										---
Tuticorin	C	1	37	6														----
Vizagapatam	C									1								---
India (French)																		
Chandernagor	C	17	62	15	7		3		4	12	4							--
Karikal	C	17	1															---
Pondichery	C	9	12	31	6				2	5	1	6	3					

Indo-China (see also table below):																		
Pnom-Penh	C	1			1							1						
Varela	C				1													
Philippine Islands: Rizal Province	C				3					1								
	D				1													
Siam:																		
Ayudhaya Province	C														3	17	9	17
	D														2	13	5	11
Bangkok	C	1												1	3	11	11	18
Bejrpuri Province	C												6	7	3	2	1	8
Kanchanapuri Province [3]	C								6	6	3							
Nagara Rajsima—Roy Ech	C	13																
	D	2																
Nondpuri Province	C																	2
Rajpuri Province	C									6	5	28	28	5	7	6	74	20
Smudprakar Province	C														1	2		2
Smudsagara Province	C										1	3	2	1	3	4	1	1
Smudsongram Province	C									1	2	13	17	18	5	18	6	27
On vessels:																		
S. S. *Incomati* at Colombo	C	1																
	D	1																
S. S. *Pasha* at Rangoon from Moulmein	C	1																
S. S. *Khandalla* at Rangoon	C	1																
S. S. *Juna* at Moulmein from Mergui	C	1																
S. S. *Karoa* at Rangoon	C	1																
S. S. *Ethiopia* at Madras from Rangoon	C		1															
	D		1															
S. S. *Ellenga* at Rangoon	C		1															
S. S. *Bodnant* at Calcutta	C			1														
S. S. *Baron Napier* at Calcutta	C			2														
S. S. *Barjora* at Calcutta	C				1													
S. S. *Rajula* at Penang	C				[4]1													
S. S. *Ranjit* at Calcutta	C				1													
S. S. *Santhia* at Rangoon from Calcutta	C						1											
S. S. *Kuala* at Penang from Moulmein	C							1										
S. S. *Cape St. Francis* at Rangoon from Calcutta	C							1										

Place		April 1935			May 1935			June 1935			July 1935		
		1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Indo-China (French) (see also table above):													
Cambodia [5]	C	1	1	2	17	8	1	8	9	6			
	D	1	1	2	12	5		3	6	1			
Cochin-China [5]	C	1	1	1	3		5	7	5	11	2		2
	D	1	1	1	2		4	7	3	3	2		2

[1] Imported. [2] For 2 weeks. [3] During the period April 20 to July 9, 1935, 98 cases of cholera with 95 deaths were reported in Kanchanapuri Province, Siam. [4] Suspected. [5] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases D, deaths P, present]

Place		Feb 24–Mar 30, 1935	Mar 31–Apr 27, 1935	Apr 28–May 25, 1935	May 26–June 29, 1935	Week ended— July 1935: 6	13	20	27	August 1935: 3	10	17	24	31	September 1935: 7	14	21	28
Argentina (see also table below)																		
Pampa Territory—																		
Leventue[2]																		
Victorica	C			1														
	D			1														
San Luis[3]																		
Azores (See table below)																		
Bechuanaland Protectorate	C			2														
Plague infected rats				P														
Belgian Congo	C	1					1		2		2							
Bolivia (See table below)																		
Brazil[4]																		
British East Africa																		
Kenya	C	2		11	4	2	2	3	14	5	6	6	1	8	2			
Tanganyika	C	1																
Uganda	C	27	95	135	340	64	59	59	58	71	38	60	40	42	36			
	D	27	90	134	324	62	50	53	56	51	36	58	40	41	33			
Ceylon Colombia	C	4	2	4	3		2	1	2	1		2		1		6	3	2
	D	4	1	4	3		2	1	2	1		2		1		4	2	2
Plague-infected rats		4	14				1	1	1									
China (see also table below)																		
Amoy	C	[5]1		[5]1														
Fukiang Province—Chuanchow[6]																		
Manchuria[7]																		
Dutch East Indies West Java	C	1 634	678	656	548													
	D	1 633	678	651	546													
Ecuador (see also table below)																		
Guayaquil	C		1								1		1	1	4	1	1	2
	D		1												2			1
Plague-infected rats															2	1	2	2
Loja Province—Celica	C							1	[illegible]									
Egypt																		
Alexandria	C			1														
Plague-infected rats		P	P	P	P	P		P		P		P		P				
Asyut	C	3	4	12	3	2							1					

Girga	C	1		1	1													
Minya	C				3													
Qena	C				1													
France: Marseille.[8]																		
Hawaii Territory:																		
Hawaii Island—Hamakua district—Plague-infected rats				1	1			3			1							
Kalopa—Plague-infected rats																		
Paauhau	C	1																
	D	1																
Plague-infected rats		2														1		
Paauilo—Plague-infected rats						1												
Pohakea—Plague-infected rats			1															
Maui Island—Makawao district—Kahului (9-10 miles from)—Plague-infected rats		2	1							2								1
India	C	9,112	6,172	2,570	261	22	36	34	84	90	162	215						
	D	5,214	3,907	2,037	183	15	20	20	56	61	101	118						
Bassein	C	6	8	4	4	2	1	1					1			1	2	
Plague-infected rats		1			1		1	2		1			1					
Bombay Presidency	C	974	306	93	14	2	14	14	38	22	28	45	37	30				
	D	548	154	46	8	2	4	8	22	11	11	24	15	18				
Madras Presidency	C	112	8	1	5				9	4	4							
	D	54	10		2				2	1		3						
Moulmein	C	[5] 1	2	1														
	D	[5] 1		1														
Northwest Frontier Province	C	15																
	D	7																
Punjab	C	343	434	548	40													
	D	195	223	327	31													
Rangoon	C	1	1	1	2	1	1	1	5	2	2	2						1
Plague-infected rats		1		2					2	1								1
Indo-China (see also table below):																		
Bentre	C	1																
Longxuyen	C				1													
Pnom-Penh	C			1							1			1				
Saigon and Cholon	C			1	2													
Tanghai Island	C		12															
Tayninh	C				1													

[1] Including plague in the United States and its possessions.
[2] A report dated Aug. 8, 1935, states that 4 cases of plague occurred at Leventue, Pampa Territory, Argentina, during 2 months.
[3] A report dated Aug. 2, 1935, states that plague-infected rats are present at San Luis, Argentina.
[4] Reports of plague in Brazil have been received under the dates indicated, as follows: July 25, 1935, 4 cases at Vicosa, Alagoas State; July 2, about 16 deaths in Fiera Santanna, Bahia State since Jan. 1; July 26, 10 cases in Ceara State since Jan. 1; Sept. 10, 204 cases with 72 deaths in Pernambuco State up to Aug. 24; Oct. 8, 4 cases and 1 death at Paulista, Piauhy State.
[5] Imported.
[6] A report dated July 4, 1935, states that 76 cases of plague with 58 deaths were reported at Chuanchow, Province of Fukiang, China.
[7] A report dated Aug. 29, 1935, states that up to Aug. 27, 78 deaths from bubonic plague were reported in the Fuyu, Shuangshan, and Changling districts of central Manchuria, China.
[8] On Oct. 15, 1935, 2 cases of bubonic plague were reported at Marseille, France, from the S. S. *Ipanema*. Plague-infected rats were found on the vessel.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases D deaths P present]

Place		Feb 24–Mar 30 1935	Mar 31–Apr 27 1935	Apr 28–May 25 1935	May 26–June 29 1935	Week ended— July 1935 6	13	20	27	August 1935 3	10	17	24	31	September 1935 7	14	21	28
Iraq																		
Baghdad	C			3	1	1		1			1	1		1		1		
Baghdad Province	C			1														
Libya Province of Tripoli—Tagiura	C							1										
Madagascar (See table below)																		
Morocco																		
Draa boundaries—Tighmert	C					6		1										
Mogador	C								9									--
	D								3									--
Saffi Region	C	9	14	1														--
	D	5	11	1														--
Peru (See table below)																		
Senegal (See table below)																		
Siam Rajpuri	C	1																
South West Africa (See table below)																		
Tunisia Tunis	C				1		1		1		1		1		3	4	3	
	D				1				1						1	1		
Plague infected rats				2	2									1				
Union of South Africa																		
Cape Province	C	5	4	17														
Orange Free State	C	9	39	6														
Transvaal	C	23	2	1														
United States																		
California—Plague infected ground squirrels																		
Lassen County					2		1											
Modoc County			3	26	65													
San Luis Obispo County			1	1														
Montana—Dillon—Plague infected ground squirrels								1										
Oregon—Plague infected ground squirrel																		
Grant County								-										
Lake County				2	1													
Wallowa County							3	13 3	[illegible]									

Place		March 1935	April 1935	May 1935	June 1935	July 1935	August 1935
Argentina (see also table above):							
Jujuy Province	C					1	
Pampa Territory—Victorica	C				2		
Santa Fe	C	1					
Santiago de Estero Province—Frias	C				2		
Azores	C				1		3
Bolivia	C	4					[11] 4
China: Kwangchowan	C		20	7			
	D		13	9			
Ecuador: Loja Province	C	17	6	4			
Indo-China (see also table above):							
Cochin-China	C	1	2	1	9		1
Naotchao Island	C	20	18				
Madagascar (central region)	C	211	209	128	95	112	
	D	263	199	124	92	102	
Peru	C	14	13	10	4	4	10
Lambayeque Department	C		1	1			

Place		March 1935	April 1935	May 1935	June 1935	July 1935	August 1935
Peru—Continued.							
Libertad Department	C	5		3		2	
Lima Department	C	5	12	6	4	2	5
Callao	C	2			1		3
	D	2			1		2
Plague-infected rats			P				
Lima	C	2	9	6	1	1	5
	D	1	7	4	1		2
Plague-infected rats			P				
Senegal							
Baol [12]	C						16
Dakar [12]	C	2	5	10	19	25	2
	D	2	4	8	13	15	1
Louga [12]	C			1			
Rufisque [12]	C		17	10	8	2	4
Theis [12]	C		3	19	20	17	22
Tivaouane [12]	C		5	30	48	42	46
Southwest Africa: Ovamboland	C	29		[13] 34		[13] 24	

[9] Plague-infected wood rat.
[10] Includes 1 suspected plague-infected squirrel.
[11] Suspected.
[12] Incomplete reports.
[13] For 2 months.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths: P, present]

Place		Feb. 21–Mar 30, 1935	Mar. 31–Apr 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	Week ended—July 1935 6	13	20	27	August 1935 3	10	17	24	31	September 1935 7	14	21	28
Algeria:																		
Algiers Department	C				1		1									3	2	
Constantine Department	C	2		1	2													
Belgian Congo. (See table below)																		
Bolivia. (See table below.)																		
Brazil:																		
Porto Alegre (alastrim)	C		1	18	46	5	12											
Rio de Janeiro	C				1													
Santos	C															1		
British East Africa:																		
Kenya	C			2	2	1			1			2	5					
Tanganyika	C	26	3	3	98	25	28	19	24	16	11	5	17	10	17			
Uganda	C			1														
British Guiana	C			P	40													
British Somaliland	C	26	37	47	25	2	1	13			3							
British South Africa: Northern Rhodesia	C	27		4	2													
Canada:																		
Alberta	C												[1] 1					
British Columbia	C												[1] 1		[1] 3		[1] 2	
Manitoba	C								[1] 1									
Ontario	C		[1] 2		1		[1] 1		[1] 1									
Quebec	C								[1] 2									
Saskatchewan	C		[1] 1		1													
Canary Islands: Santa Cruz de Tenerife	C												1					
Ceylon:																		
Colombo	C			2														
Galle	C	14																
Welitara	C	50																
Chile: Chuquicamata	C							[1] 1		1								
China:																		
Amoy	C	7	4		4	1			1					1				
Canton	C	12	2															
Dairen	C	4	4	21	29	2	3	1	2	1								
Foochow	C	P	P	P	P		P		P		P		P		P			
Hangchow	C	2	3	1	3	1												

Hong Kong	C	14	12	10	1													
Macao	D	23	2	1														
Nanking	C	5		2	1		1	2										
Shanghai	C	7	3	12	12		2			1	1	3				1		
Swatow	C	2			3													
Tientsin	C	10	8	2	7													
Tsingtao	C	16	13	9	3					1								
Chosen. (See table below.)																		
Colombia	C	8	25	26	44									3				
Barranquilla	C			1														
Bogota	C			3						1	9							
Dahomey. (See table below.)																		
Egypt:																		
Dakahliya	C	4	20	13	2													
Gharbiya	C	3			1													
Suez	C	1																
Provinces	C	21		1	1													
Eritrea	C	5											5		6	6		
France. (See table below.)																		
French Somaliland	C	14	1															
Great Britain: England and Wales	C				1													
Greece: Salonika	C	5	1	14	64						2	2	2	2	2	2		
Guatemala. (See table below.)																		
Honduras: Tela	C		6		4	P		P	P									
India	C	47,384	45,558	37,507	30,173	3,573	3,528	3,292	3,047	2,569	2,662	1,884						
	D	9,464	9,637	8,423	7,225	901	862	829	728	612	711	517						
Assam	C	47	32	56	28		1	5		7	11	17	57	8	11	5	3	
Bassein	C			[2] 1														
Bombay Presidency	C	11,693	10,497	7,958	5,046	635	522	515	601	409	491	313	235	230				
	D	2,241	1,970	1,430	957	133	123	105	105	91	81	76	60	55				
Bombay	C	441	435	284	239	30	28	23	21	20	12	10		12	10	6	3	5
	D	262	257	176	159	22	14	15	18	10	8	5		10	6	4	3	2
Calcutta	C	429	433	246	125	15	15	13	13	7	14	11	11	10	6	7	5	6
	D	241	326	188	109	12	9	11	8	4	9	4	8	2	5	5	2	3
Chittagong	C	[2] 2																
Cochin	C	5	2															
Karachi	C	39	43	23	26	2	2	2	1	2	2		1	2		1		
Madras Presidency	C	6,493	4,366	2,694	3,190	700	740	609	766	628	607							
	D	972	720	559	624	98	112	108	114	107	101							
Madras	C	49	47	22	24		2	4	4	1	3	3	2	1	1	5	2	2
Moulmein	C	2		1	5	5			1	2		4	8	4	4	1		
Negapatam	C	61	20	13	8	3	1	1	1	13	1			3	1			2
Northwest Frontier Province	C							8	1	1	1			4	2			
Punjab	C	212	133	443	430	71	25	50	22	30	12	10	14	6	9	16	37	
Rangoon	C	216	95	59	25	4	6	4	2	1	2	2	2	1		1	1	
Tuticorin	C	1	28	5	11		14	4	1	8	3		9	5	6	4	1	1
Vizagapatam	C	144	119	58	40	8	1	4	1	6		1	2	5	1	2	10	1

[1] For 2 weeks.
[2] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	Week ended— July 1935 6	13	20	27	August 1935 3	10	17	24	31	September 1935 7	14	21	28
India (French):																		
Chandernagor	C	6	19	4	5	1	2											
Karikal	C	14	32	19	39	1	3	9	8	3	15	4						
Pondichery	C	110	96	59	61	8	10		[1] 32	9	10	12	12					
	D	91	78	51	48	8	10		23	8	8	11	12					
Indo-China (see also table below):																		
Haiphong	C	3	4	7	3		2			1								
Pnom-Penh	C	8																
Tourane	C	6																
Iran	C	1	1	11	7							1		1				
Teheran	C			2	3		1								2			
	D			2	1													
Iraq	C	6	11	18	3					4		1	4					
Arbil	C		2	1							1							
Baghdad	C				1													
Basra	C		2															
Mosul liwa	C	9	2															
Japan (see also table below)	C			23														
Kawasaki	C							1										
Kobe	C				1													
Mizuna Migifu Prefecture.[3]																		
Nagasaki	C	3																
Nagoya	C				5													
Osaka	C			1														
Taiwan	C		1															
Lithuania	C							1										
Mexico (see also table below):																		
Chihuahua	C	18	11	[4] 2														
Guadalajara	D			1	5		1	1					1			2		
Mazatlan	C	1	1															
Mexico, D. F.	C	161	54	108	135	13	10		9	18	18	6	3	6	8	9		
Monterrey	C	1	2															
San Luis Potosi	D		1						2			2			2	1		
Vera Cruz	C	[3] 1																

Morocco. (See table below.)																		
Mozambique. (See table below.)																		
Nigeria	C	514	399	292	389	122	42	251	57		73	11	40					
Lagos	C				1													
Niger Territory. (See table below.)																		
Nyasaland. (See table below.)																		
Palestine	C	2		3														
Peru. (See table below.)																		
Poland	C	1					1					1						
Portugal (see also table below):																		
Lisbon	C	5	2		1			1			1			1	1		1	
Oporto	C			1	1	1			1									
Portuguese East Africa	C		2	7														
Salvador. (See table below.)																		
Saudi Arabia	C	48		24	14	1		[1] 6		1								
Siam: Bangkok	C					4		2										
Sierra Leone	C	123	196	64	31	[1] 37		[1] 10		[1] 95		[1] 165		[1] 84				
Freetown	C					[1] 2		[1] 4		[1] 2		[1] 1						
Spain	C	34	36	38	45	17	4	9	8		5	2	3	3	2			
Straits Settlements: Singapore	C		7	6	7	2	3	7	4	2	4	1	2	3		1		
Sudan (Anglo-Egyptian)	C	8	23	6	2			1	1	3	1		3					
Syria	C	2	1															
Tunisia	C			1														
Turkey. (See table below.)																		
Union of Soviet Socialist Republics. (See table below.)																		

On vessels:

S. S. *Mongolia* at Suez from Australia	1 case	Feb. 24, 1935
S. S. *Ellenga* at Rangoon	1 case	Feb. 26, 1935
S. S. *Suisang* at Singapore from Hong Kong	1 case	Feb. 27, 1935
S. S. *Empress of Britain* at Singapore from Bombay	1 case	Mar. 3, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	Mar 11, 1935
S. S. *Kutsang* at Hong Kong	1 case	Mar. 14, 1935
S. S. *Tatsuta Maru* at San Francisco	1 case	Mar 14, 1935
Do	1 case	Mar. 15, 1935
S. S. *Pandeen* at Port Said from Odessa	1 case	Mar. 16, 1935
S. S. *Anhui* at Singapore from Hong Kong	2 cases	Mar. 22, 1935
S. S. *Van Heutsz* at Singapore from Amoy	1 case	Mar. 26, 1935
S. S. *Mulbera* at Aden	1 case	Mar. 28, 1935
S. S. *Anshun* at Swatow from Hong Kong	1 case	Mar. 28, 1935
S. S. *Varsova* at Karachi	1 case	Mar. 30, 1935
S. S. *Jinkai Maru* at Singapore from Miike	1 case	Apr. 3, 1935

On vessels—Continued.

S. S. *Ozarda* at Tuticorin from Akyab	1 case	Apr. 3, 1935
S. S. *Ekma* at Rangoon from Calcutta	1 case	Apr. 12, 1935
S. S. *Ipoh* at Penang from Singapore	1 case	Apr. 12, 1935
S. S. *Hong Peng* at Singapore from Amoy	1 case	Apr. 17, 1935
S. S. *Anhui* at Singapore from Hong Kong	1 case	Apr. 18, 1935
S. S. *Jalagopal* at Rangoon from Chittagong	1 case	Apr. 19, 1935
S. S. *Nagasaki Maru* at Nagasaki from Shanghai	1 case	May 10, 1935
S. S. *Karoa* at Singapore from Calcutta	1 case	May 29, 1935
S. S. *Anshun* at Singapore from Hong Kong	1 case	June 1, 1935
S. S. *Cremer* at Singapore, from Amoy	1 case	June 4, 1935
S. S. *Van Heutsz* at Singapore from Amoy	1 case	June 18, 1935
S. S. *Chitose Maru* at Nagasaki from Dairen	2 cases	July 2, 1935
S. S. *Perala* at Aden from Massawa	1 case	July 13, 1935
S. S. *Hong Kheng* at Singapore from Amoy	2 cases	Aug. 1, 1935
S. S. *Barenfels* at Gibraltar	1 case	Aug. 23, 1935

[1] For 2 weeks.
[2] Imported.
[3] A report dated June 11, 1935, states that 10 deaths from smallpox had occurred at Mizuna Migifu Prefecture, Japan.
[4] For 3 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		March 1935	April 1935	May 1935	June 1935	July 1935	August 1935
Belgian Congo	C	95	151	165	108	197	
Bolivia	C	42	36	33	44	47	30
Chosen	C	178	211	157	102		
Dahomey	C	16					
Finland	C		1		1		
France	C	78	8	15	57	60	1
Guatemala	C	1					
Indo-China (see also table above)	C	601	552	303	210	203	138
	D	53	92	53	57	31	30
Japan (see also table above)	C		6	45	26		
Mexico (see also table above):							
Aguascalientes State—							
Aguascalientes	C	19	8		3	3	
Campeche State	C				2	1	
Chihuahua State	C				4		
Chihuahua	C	16			3		
Guanajuato State	C					4	
Leon	C	1	7		13	2	
Hidalgo State	C				1		
Jalisco State	C				10	10	
Guadalajara	C				5	2	
Lower California	C					3	
Mexico (see also table above)—Con.							
Mexico State	C				1	1	
Mexico D. F.	C				140	54	
Mexico city	C	134	125		118	41	
Morelos State	C				1		
Nuevo Leon State	C				7		
Oaxaca State	C	3	5		2		
Puebla State—							
Puebla	C	9	7		6	2	
Queretaro State	C				5		
San Luis Potosi State	C					5	
San Luis Potosi	C				5	3	
Morocco	C	3	8	13	12	5	
Mozambique	C	4	3				
Niger Territory	C		246	797			
Nyasaland	C	26	2	1	37	35	
Peru	C	16	15	28	3	10	
Portugal (see also table above)	C	43	25	41	76	38	
	D	2	1	5	5	2	
Salvador	C					35	
Turkey	C	28	1	13	30	9	
Union of Soviet Socialist Republics	C	284	144	255			

TYPHUS FEVER

Place		Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended— June 1935					July 1935				August 1935					September 1935	
					1	8	15	22	29	6	13	20	27	3	10	17	24	31	7	14
Algeria:																				
Algiers Department	C	12	18	38		4		28	11	5	11	2					1			
Algiers	C			2	1		1													
Constantine Department	C	58	84	23	7	18	8	37	27	17	6	8	5		1	1		1		1
Constantine	C	4	3	2																
Philippeville	C				3	1		1			1	1								
Oran Department	C	11	3	2	1		1	1	1	2		15								
Southern Territories	C	11	3	20																
Australia: Queensland	C										1	1			1					
Belgian Congo	C	1																		
Bolivia. (See table below.)																				
British East Africa: Uganda	C	1																		
Bulgaria	C	7	2																	
Chile	C	533	333	414		[1] 142				[2] 273	89									
Conception	C	8	28	42		[1] 18				[2] 14	16									
Iquique.[3]																				
Santiago	C	46	207	215						[2] 149	49									
Valparaiso	C	5	3	5								1		2	2	1	3		2	7
China:																				
Canton	C			1																
Hangchow	C	1							2											
Hankow	C									1		1						1		
Harbin[4]	C		5	20	2															
Nanking	C	1		2		1									1					
Shanghai	C	3		1		1			1		1		1			2	1			
Tientsin	C			5	1	3		1												
Tsingtao	C		2					1		1				1	1			4		
Chosen. (See table below.)																				
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	7	21	20	2	2	3	2	3	1	2		1							
Aswan	C	24	9	41	1	1														
Asyut	C	11	1							1	1	1		1		1	1	1		
Beheira	C	223	243	161	13	15	12	14	5	8	4	5	2	3	3	1		2		1

[1] For 2 weeks.
[2] For 4 weeks.
[3] For the week ended Mar. 9, 1935, 11 cases of typhus fever were reported at San Jose nitrate camp about 42 miles from Iquique, Chile.
[4] A report dated June 25, 1935, states that about 400 case of typhus fever occurred at Harbin, Manchuria, China.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended— June 1935: 1	8	15	22	29	July 1935: 6	13	20	27	August 1935: 3	10	17	24	31	September 1935: 7	14
Egypt—Continued																				
Beni-Suef	C	2	1	2		1	1				1			1						
Cairo	C	5	6	5		1						1			1					
Dakahliya	C	64	14	4			2			2							1			
Damietta	C																			
Faiyum	C								1											1
Gharbiya	C	224	180	96	36	18	33	17	15	10	18	4	4	3	4	5	3	1		2
Girga	C	7	2														1			
Minufiya	C	84	125	44	7	5	5	5	5	3	9	3	5		1					1
Minya	C	1	4	4	1			1	2			2			1		2			
Port Said	C	2		1						1	1						1	1	1	
Qena	C	4		3	1															
Sharkiya	C	61	20	6		2	4		3	1	1	1	1					1		
Suez	C	1																		
Provinces	C	738	675	502	63	48	64	43	37	26	40	17	15	8	11	8	8	6	8	4
Greece. (See table below.)																				
Guatemala. (See table below.)																				
Hawaii Territory—Honolulu	C									1							1			
Hungary	C		4	17		5														
Iran	C	106	132	88	33	21	17	14	13	7		16	6	4	3	6	7	9	9	6
Teheran	C	4	1	15	2	7	3	5	5	4		5	5					1	1	1
Iraq:																				
Baghdad	C																	1		
Sulaimani liwa	C		42	14	3	2	2	2												
Irish Free State:																				
Cork County—Castletown	C	1		1																
Waterford County—Lismore	C					1														
Japan: Tokyo	C					4	7	1	1	1										
Latvia. (See table below.)																				
Libya: Tripolitania	C	4																		
Lithuania	C	74	42	37	6	6	2	3	4	1	6	3	2	3			3			1
Mexico (see also table below):																				
Guadalajara	D								1			1								
Mexico, D. F.	C	72	49							14	20		60		30	36	33	43	36	42
Progreso	D	1																		
Torreon	D																			1

Palestine:																				
Haifa	C	1	2	3	------	3	------	------	------	[5] 2	------	1	------	------	------	2	1	[6] 4	------	6
Jaffa	C	------	1	5	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Panama Canal Zone. (See table below.)																				
Paraguay: Asuncion	D	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------
Peru. (See table below.)																				
Poland	C	580	597	597	127	104	80	67	67	48	52	41	34	33	30	22	24	21	14	------
	D	46	33	42	5	4	3	4	5	1	3	5	1	2	4	1	2	1	1	------
Portugal. (See table below.)																				
Rumania. (See table below.)																				
Saudi Arabia	C	6	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Straits Settlements: Singapore	C	1	3	2	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------
Trans-Jordan	C	6	17	11	6	1	4	2	------	------	------	------	------	------	------	------	------	1	2	------
Tunisia:																				
Tunis	C	3	32	9	------	------	1	------	2	------	------	1	------	1	------	------	------	------	3	------
Provinces	C	106	225	158	34	25	11	30	15	13	34	25	16	17	15	15	9	------	12	4
Turkey. (See table below.)																				
Union of South Africa. (See table below.)																				
Union of Soviet Socialist Republics. (See table below.)																				
Yugoslavia. (See table below.)																				
On vessel S. S. *Nosa Prince* at San Francisco	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Place		March 1935	April 1935	May 1935	June 1935	July 1935	August 1935
Bolivia	C	43	56	127	111	114	150
China: Manchuria—Harbin	C	26	------	45	25	------	------
Chosen	C	179	198	254	135	------	------
Czechoslovakia	C	52	13	8	11	33	3
Greece	C	1	3	2	------	5	------
Guatemala	C	30	35	7	6	22	24
Latvia	C	1	------	4	------	1	------
Mexico (see also table above):							
Aguascalientes State—							
Aguascalientes	C	------	------	------	1	------	------
Durango State	C	------	------	------	------	1	------
Guanajuato State	C	------	------	------	3	9	------
Leon	C	------	------	------	1	5	------
Hidalgo State	C	------	------	------	------	6	------
Jalisco State—							
Guadalajara	C	------	------	------	3	1	------
Mexico State	C	------	------	------	------	2	------
Mexico; D. F.	C	------	------	------	95	178	------
Mexico City	C	63	59	------	91	170	------
Michoacan State	D	------	------	------	1	------	------

Place		March 1935	April 1935	May 1935	June 1935	July 1935	August 1935
Mexico (see also table above)—Con.							
Oaxaca State	C	------	------	------	1	5	------
Puebla State	C	------	------	------	------	7	------
Puebla	C	------	------	------	4	5	------
Queretaro State	C	------	------	------	1	------	------
San Luis Potosi State	D	------	------	------	------	11	------
San Luis Potosi	C	------	------	------	5	1	------
Vera Cruz State	C	------	------	------	1	------	------
Panama Canal Zone	C	------	1	2	1	1	------
Peru	C	10	87	96	19	16	------
Portugal	C	------	8	2	3	4	------
Rumania	C	433	494	574	300	59	36
Turkey	C	56	25	69	54	42	------
Union of South Africa:							
Cape Province	C	100	70	128	172	79	------
Natal	C	2	30	5	2	2	------
Orange Free State	C	71	26	44	123	37	------
Transvaal	C	21	83	12	25	3	------
Union of Soviet Socialist Republics	C	10,921	8,414	7,193	------	------	------
Yugoslavia	C	117	104	64	131	49	31

[5] Imported.

[6] Includes 3 imported cases.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Feb. 24–Mar. 30, 1935	Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	Week ended—													
					June 1935					July 1935				August 1935				
					1	8	15	22	29	6	13	20	27	3	10	17	24	31
Bolivia: Santa Cruz Department—Chuchio.[1]																		
Brazil:																		
Goyaz State	C				4			2										
	D	11	10	6														
Maranhao State	C								1									
Mato Grosso State	C							2		9								
Minas Geraes State	C				6			6	2	4		2			1			8
	D			9				6	2									
Para State [2]	C								1									
Sao Paulo State [2]	C							1										
Colombia:																		
Intendencia of Meta—																		
Acacias	D													1				
Restrepo	C	2		1								1						
Dahomey:																		
Parakou	C				[3] 1													
Porto Novo	C											1						
French Equatorial Africa: Middle Congo—Pointe-noire	C	[3] 2																
Gold Coast: Cape Coast	C														1			
Ivory Coast:																		
Bassam (near)	C	1																
Gagnoa	C	1																
Sierra Leone: Freetown	C	2																
Togo:																		
Agoueve	C			1														
Kouma	C			1														
Sokode	C			1														

[1] During the month of June 1935, 1 case of yellow fever was reported at Chuchio, Santa Cruz Department, Bolivia.
[2] A report dated October 11, 1935, states that 1 case of yellow fever with 1 death was reported at Oriximina, Para State, and that yellow fever was present Aug. 21, 1935, at Ribeirao Preto, Sao Paulo State, Brazil.
[3] Suspected.

X

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen R. C WILLIAMS, *Chief of Division*

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PUBLIC HEALTH REPORTS

VOL. 50 NOVEMBER 1, 1935 NO. 44

DISABLING ILLNESS AMONG INDUSTRIAL EMPLOYEES IN 1934 AS COMPARED WITH EARLIER YEARS

By DEAN K. BRUNDAGE, *Statistician, Office of Industrial Hygiene and Sanitation, United States Public Health Service*

The incidence rate of new cases of sickness and nonindustrial accidents causing absence from work for more than 1 week in a group of 174,643 male industrial employees was lower in 1934 than in the preceding year, when the lowest rate since 1921 was recorded. The frequency of cases in 1934 was 3 percent below the rate for 1933, 21 percent below the 1932 rate, 32 percent lower than in 1929, and 14 percent below the rate for 1921. In these comparisons the rate of occurrence of new cases has been based on the experience of employees in the same industrial establishments with the exception of the rate for 1921, which includes the employees of all establishments reporting at that time. It is apparent, therefore, that the increase in industrial activity since 1932 has not been associated thus far with any increase in the frequency of cases of disabling illness of 8 days and longer among male employees of the 37 reporting companies.

New lows were recorded in 1934 for both the respiratory and nonrespiratory disease groups, although the proportional decrease was greater in the respiratory group. The rate of 24.5 cases of respiratory disease per 1,000 men was 14 percent lower than the previous minimum (in 1933) registered since 1921, when the collection of industrial morbidity statistics was inaugurated. Sickness exclusive of influenza occurred at precisely the same rate as in 1933; hence the lower rate in 1934 was due to a decrease in the prevalence of influenza. The rate of 10.1 influenza cases per 1,000 men was 21 percent lower than the previous minimum influenza rate of 12.9 in 1921.

23169°—35——1

TABLE 1.—*Frequency of specified causes of disability lasting 8 consecutive calendar days or longer among male industrial workers in various industries, by years, from 1929 to 1934, inclusive* [1]

Year in which disability began	Sickness and nonindustrial injuries [2]		Sickness		Respiratory diseases [3]		Sickness exclusive of influenza		Nonrespiratory diseases		Average number of men, all reporting establishments
	A	B	A	B	A	B	A	B	A	B	
1929	112.4	110.6	99.9	98.1	47.8	46.8	73.9	71.9	52.1	51.3	194,451
1930	94.1	93.8	81.8	81.6	32.0	32.3	68.5	68.2	49.8	49.3	188,714
1931	94.6	93.2	82.2	81.1	34.9	34.8	63.3	62.1	47.3	46.3	171,694
1932	97.5	94.7	84.9	82.3	37.6	37.0	62.9	60.4	47.3	45.3	163,979
1933	82.3	76.8	71.0	66.2	28.6	25.6	55.7	53.0	42.4	40.6	152,203
1934	78.1	74.7	65.8	62.8	24.5	23.4	55.7	53.0	41.3	39.4	174,643
5 preceding years [4]	96.2	93.8	84.0	81.8	36.2	35.3	64.9	63.1	47.8	46.5	174,208

[1] For the record 1921 to 1928, inclusive, see Public Health Reports, vol. 47, no. 18, Apr. 29, 1932, pp. 995–1001.
[2] Industrial accidents, venereal diseases, and a few numerically unimportant causes of disability are not reported.
[3] Title numbers 11, 23, 104–115a, in the International List of the Causes of Death, fourth revision, Paris, 1929.
[4] 1929 to 1933, inclusive.

A = all reporting establishments; B = establishments which reported throughout the 6 years ending Dec. 31, 1934.

These findings are based on reports to the Public Health Service from a group of 37 industrial sick-benefit organizations which pay cash benefits to members disabled by illness or nonindustrial accident for eight consecutive calendar days or longer. Employees of the reporting companies are scattered over almost all parts of the country, but most of them are concentrated in the North Central, North Atlantic, and New England States.

TRENDS IN THE FREQUENCY OF RESPIRATORY DISEASES

With the exception of influenza and tuberculosis, there were more cases of respiratory disease per 1,000 men in 1934 than in 1933 in the sample of the industrial population under consideration. However, the increase was not large in any numerically important subgroup, the 1934 incidence rate being below the average rate for the five preceding years for bronchitis, diseases of the pharynx and tonsils, pneumonia (all forms), and "other" respiratory diseases.

The decrease in the frequency of new cases of respiratory tuberculosis during the past 13 years has been little short of spectacular. In 1921 and 1922 the tuberculosis incidence rate was 1.9 cases per 1,000 men per year; in 1933 and 1934 the rate was only 0.8, a decrease of 58 percent. A corresponding decrease is shown in the records of mortality from pulmonary tuberculosis. Among the millions of industrial policyholders of the Metropolitan Life Insurance Co., the death rate from this disease fell almost 50 percent between 1922 and 1934.[1]

[1] Statistical bulletins, Metropolitan Life Insurance Co., New York, vol. 6, no. 1, January 1925, p. 7, and vol. 16, no. 1, January 1935, p. 7.

The frequency rate of pneumonia (all forms) also shows a gratifying decrease in recent years. From 1921 to 1929, inclusive, the average incidence rate of pneumonia was 3.3 cases per 1,000 men per year; during the past 5 years (1930–1934, inclusive) the average rate was only 2.1, a decrease of 36 percent. The lowest rate during the 14 years under review was 1.8 for 1933; in 1934 the rate increased slightly to 2.0, the same incidence as was recorded for 1932.

TABLE 2.—*Frequency of specified respiratory diseases which caused disability for 8 consecutive calendar days or longer among male industrial workers in various industries, by years, from 1929 to 1934, inclusive* [1]

Year in which disability began	Influenza or grippe (11)		Bronchitis, acute and chronic (106)		Diseases of the pharynx and tonsils (115a)		Pneumonia, all forms (107-109)		Tuberculosis of the respiratory system (23)		Other diseases of the respiratory system (104-105) (110-114)	
	A	B	A	B	A	B	A	B	A	B	A	B
1929	26.0	26.2	5.3	5.2	7.2	6.3	3.1	3.2	1.2	1.1	5.0	4.8
1930	13.3	13.4	4.6	4.8	6.0	5.8	2.5	2.7	1.1	1.1	4.5	4.5
1931	18.9	19.0	3.6	3.6	5.2	5.0	2.1	2.2	1.0	1.0	4.1	4.0
1932	22.0	21.9	3.6	3.5	4.5	4.4	2.0	2.0	1.0	1.0	4.5	4.2
1933	15.3	13.2	2.9	2.8	3.9	3.4	1.8	1.7	.8	.8	3.9	3.7
1934	10.1	9.8	3.2	3.2	4.3	3.9	2.0	2.0	.8	.8	4.1	3.7
5 preceding years	19.1	18.7	4.0	4.0	5.4	5.0	2.3	2.4	1.0	1.0	4.4	4.2

[1] For the record 1921 to 1928, inclusive, see Public Health Reports, vol. 47, no. 18, Apr. 29, 1932, pp. 995–1001.

A=all reporting establishments; B=establishments which reported throughout the 6 years ending Dec. 31, 1934.

Numbers shown in parentheses are disease title numbers from the International List of the Causes of Death, fourth revision, Paris, 1929.

TRENDS IN THE FREQUENCY OF DISEASES OF THE DIGESTIVE SYSTEM

The digestive disease rate was higher in 1934 than in 1933 principally on account of an increase in the frequency of appendicitis. However, neither the digestive disease rate nor the rate of appendicitis was abnormally high in 1934 measured by average rates over a series of years. The frequency of appendicitis was only slightly above the average rate for the preceding 5 years and for the period 1921 to 1928. The rate of 12.7 cases of digestive disease per 1,000 males in 1934 was lower than the average for the preceding 5 years and for the period 1921 to 1928. Since 1929 the digestive disease rate has decreased about 15 percent, but the frequency of appendicitis in 1934 was about the same as it was 5 years ago. The decrease in the rate for digestive diseases as a whole during the past 5 years has been due largely to a decline in the incidence of the less serious digestive diseases included in the group of diseases of the stomach except cancer and in the diarrhea and enteritis category; the more serious diseases of the digestive system which are included in "other" digestive diseases occurred at approximately the same rates in 1933 and 1934 as in 1929 and 1930. There has been relatively little change in the frequency

of disability on account of hernia during the past 14 years in the group of male industrial workers under consideration.

TABLE 3.—*Frequency of specified diseases of the digestive system which caused disability for 8 consecutive calendar days or longer among male industrial workers in various industries, by years, from 1929 to 1934, inclusive* [1]

Year in which disability began	Digestive diseases total (115b–129)		Diseases of the stomach except cancer (117–118)		Diarrhea and enteritis (120)		Appendicitis (121)		Hernia (122a)		Other digestive diseases (115b, 116, 122b–129)	
	A	B	A	B	A	B	A	B	A	B	A	B
1929	15.6	15.6	4.7	4.7	1.5	1.4	4.5	4.5	1.8	1.9	3.1	3.1
1930	14.8	14.5	4.7	4.7	1.5	1.5	4.0	3.7	1.7	1.8	2.9	2.8
1931	13.4	12.9	4.0	3.6	1.2	1.2	3.7	3.5	1.8	1.9	2.7	2.7
1932	13.3	12.6	4.0	3.7	1.0	1.0	3.4	3.3	1.9	1.9	3.0	2.7
1933	12.1	11.1	3.3	3.3	1.0	1.0	3.3	3.0	1.3	1.3	3.2	2.5
1934	12.7	12.1	3.2	3.3	1.3	1.2	3.9	3.6	1.5	1.5	2.8	2.5
5 preceding years	13.8	13.3	4.1	4.0	1.2	1.2	3.8	3.6	1.7	1.8	3.0	2.7

[1] For the record 1921 to 1928, inclusive, see Public Health Reports, vol. 47, no. 18, Apr. 29, 1932, pp. 995–1001.

A=all reporting establishments; B=establishments which reported throughout the 6 years ending Dec. 31, 1934.

Numbers in parentheses are disease title numbers from the International List of the Causes of Death, fourth revision, Paris, 1929.

TRENDS IN THE FREQUENCY OF NONRESPIRATORY, NONDIGESTIVE DISEASES

As a whole, diseases other than those of the respiratory and digestive systems occurred at a lower rate in 1934 than in any other year under review. The previous minimum was a rate of 30.3 cases per 1,000 men in 1933; in 1934 the frequency of these diseases as a group declined to 28.6, a reduction of approximately 5 percent. Since a number of diseases which cause a large amount of time lost from work are included in this broad group, the favorable rates during the past 2 years are particularly noteworthy.

The causes of the lower rates for nonrespiratory, nondigestive diseases during the past 2 years are to be found in a reduced incidence of rheumatism (acute and chronic), diseases of the organs of locomotion, diseases of the skin, and certain other disease groups of lesser numerical importance. During the 8 years from 1921 to 1928, inclusive, the incidence rate of rheumatism (acute and chronic) was 6.0 cases per 1,000 men per year; in 1934 the rate was only 4.0, a decrease of one-third. Although the trend has been downward since 1928, the sharpest decreases in the rheumatism incidence rates have occurred since 1932. To what extent this change may be due to the replacement of rheumatic with more able-bodied workers cannot be ascertained at present. A somewhat less abrupt decrease is shown in the frequency of a related group of diseases, e. g., lumbago and other

diseases of the organs of locomotion. In 1934 the frequency of these ailments was about 20 percent below the incidence recorded for 1932. The record for diseases of the skin reveals a marked downward trend since 1927, when the rate was 4.7 cases per 1,000 men. Since then the incidence rate each year has been lower than that for the preceding year, with the exception of 1933, the rate for which was the same as in 1932. In 1934 a new minimum was attained, 47 percent below the rate recorded in 1927 for 8-day or longer disabilities from diseases of the skin.

Disease groups showing relatively little change in frequency in 1933 and 1934 as compared with earlier years include diseases of the heart, diseases of the genito-urinary system and annexa except nephritis, neuralgia, neuritis, and sciatica, diseases of the ears and of the mastoid process, and cancer.

For nephritis (acute and chronic) the rates of 1933 and 1934 (which were identical) were definitely lower than in any preceding year of record.

Claims for sickness benefits on account of neurasthenia decreased sharply in 1933 and 1934 as compared with earlier years. The depression peak for this disorder occurred in 1931, when the rate was 87 percent above the incidence of 1934. Definitely unfavorable, however, is the trend of "other" diseases of the nervous system, which include the more serious pathological conditions such as the psychoses, cerebral hemorrhage, and thrombosis. For this group the average frequency rate during the years 1921 to 1928 was 0 9 cases per 1,000 men per year; during the next 5 years the average rate rose to 1 2, and in 1933 and 1934 the annual rate was 1.4 cases per 1,000 men, the highest rate recorded thus far.

The frequency of cancer (all forms) in 1934 was the same as in 1928 and 1929 There is little evidence of a trend one way or the other in the frequency of new cases of malignant tumor among the industrial workers for whom sickness records are available.

The rate of occurrence of 8-day or longer disabilities from nonindustrial accidents rose 9 percent in 1934 over the rate for the preceding year, compared with the annual frequency in the 1921–28 period the increase was 20 percent Since 1921 the trend in the frequency of nonindustrial injuries has been upward, probably due in large part to the increasing hazards of motor-car transportation.

Table 4.—*Frequency of specified nonrespiratory, nondigestive diseases which caused disability for 8 consecutive calendar days or longer among male industrial workers in various industries, by years, from 1929 to 1934, inclusive* [1]

Year in which disability began	Nonrespiratory, nondigestive diseases, total		Diseases of the circulatory system except diseases of the veins (90–99, 101–103)		Diseases of the veins (100)		Diseases of the heart (90–95)		Nephritis—acute and chronic (130–132)	
	A	B	A	B	A	B	A	B	A	B
1929	36.5	35.7	3.4	3.5	1.7	1.7	2.2	2.3	0.8	0.8
1930	35.0	34.8	3.4	3.4	1.6	1.6	2.1	2.1	.7	.8
1931	33.9	33.4	3.2	3.2	1.8	1.5	2.0	2.1	.7	.7
1932	34.0	32.7	3.7	3.6	1.8	1.7	2.5	2.4	.8	.8
1933	30.3	29.5	3.4	3.2	1.4	1.4	2.1	2.1	.5	.6
1934	28.6	27.3	3.0	2.9	1.5	1.3	2.0	1.9	.5	.6
5 preceding years	34.0	33.2	3.4	3.4	1.7	1.6	2.2	2.2	.7	.7

Year in which disability began	Other diseases of the genito-urinary system and annexa (133–138)		Neuralgia, neuritis, sciatica (87a)		Neurasthenia and the like (87b)		Other diseases of the nervous system (78–85)		Diseases of the organs of vision (88)	
	A	B	A	B	A	B	A	B	A	B
1929	2.2	2.1	2.5	2.5	1.3	1.2	1.1	1.0	1.0	1.0
1930	2.4	2.3	2.3	2.2	1.2	1.2	1.0	1.1	1.1	1.1
1931	2.3	2.2	2.1	2.1	1.5	1.4	1.1	1.3	1.0	1.0
1932	2.3	2.1	2.3	2.3	1.3	1.1	1.2	1.2	.9	.8
1933	2.2	2.1	2.1	1.9	.8	.8	1.4	1.3	.8	.8
1934	2.4	2.1	1.8	1.8	.8	.7	1.4	1.1	.8	.7
5 preceding years	2.3	2.2	2.3	2.2	1.2	1.1	1.2	1.2	1.0	.9

Year in which disability began	Diseases of the ears and of the mastoid process (89)		Rheumatism, acute and chronic (56, 57)		Diseases of the organs of locomotion except diseases of the joints (156b)		Diseases of the skin (151–153)		Infectious and parasitic diseases [2] (1–10, 12–22, 24–33, 36–44)	
	A	B	A	B	A	B	A	B	A	B
1929	0.7	0.6	5.6	5.6	3.9	3.9	4.2	4.2	3.9	3.5
1930	.5	.5	5.6	5.6	3.5	3.5	3.8	3.8	3.8	3.5
1931	.7	.6	5.4	5.4	3.3	3.5	3.2	3.3	3.3	2.9
1932	.7	.7	5.3	5.5	3.3	3.6	2.7	2.7	2.7	2.1
1933	.6	.6	4.9	4.9	2.8	3.0	2.7	2.6	2.0	1.8
1934	.5	.6	4.0	4.0	2.7	2.8	2.5	2.3	2.5	2.4
5 preceding years	.6	.6	5.4	5.4	3.4	3.5	3.3	3.3	3.1	2.8

Year in which disability began	Cancer, all forms (45–53)		Other general diseases [3] (54, 55, 59–77)		Diseases of the bones and joints (154–156a)		Ill-defined and unknown causes of disability (200)		Nonindustrial injuries (163–198)	
	A	B	A	B	A	B	A	B	A	B
1929	0.4	0.4	1.2	1.2	0.8	0.7	1.8	1.8	12.5	12.5
1930	.5	.5	1.2	1.2	.7	.8	1.7	1.7	12.3	12.2
1931	.6	.6	1.2	1.2	.6	.6	1.9	1.9	12.4	12.1
1932	.6	.6	1.7	1.7	.4	.5	2.3	1.7	12.6	12.4
1933	.5	.5	1.7	1.6	.5	.6	2.0	1.8	11.3	10.6
1934	.4	.4	1.9	1.8	.4	.3	1.5	1.5	12.3	11.9
5 preceding years	.5	.5	1.4	1.4	.6	.6	1.9	1.8	12.2	12.0

[1] For the record 1921 to 1928, inclusive, see Public Health Reports, vol. 47, no. 18, Apr. 29, 1932, pp. 995–1001.
[2] Except influenza, respiratory tuberculosis, and the venereal diseases.
[3] Includes nutritional diseases, diseases of the endocrine glands, diseases of the blood and blood-making organs, chronic poisonings, and intoxications.

A = all reporting establishments; B = establishments which reported throughout the 6 years ending Dec. 31, 1934.
Numbers shown in parentheses are disease title numbers from the International List of the Causes of Death, fourth revision, Paris, 1929.

SICKNESS FREQUENCY ACCORDING TO SEX

Female members of the reporting sick-benefit associations experienced disabilities lasting 8 days or longer 58 percent oftener than males during the 5 years ending December 31, 1933, and in 1934 the female incidence rate was 84 percent above the male rate. This difference is not due to diseases of pregnancy, childbirth, and the puerperal state, because most of the reporting associations pay benefits only for ailments common to both sexes. Furthermore, the age distribution of female industrial workers is more favorable from a health standpoint than that of males, because relatively few women are found in industry at ages above 45. Nevertheless, the frequency both of respiratory and of nonrespiratory diseases was much higher among the women in each of the years under review. The *trend* of sickness frequency, however, was quite similar to that among males. In 1933 and 1934 the female as well as the male incidence rates decreased markedly from a level that was hitherto regarded as probably representative of minimum sickness frequency.

TABLE 5.—*Frequency of specified causes of disability lasting 8 consecutive calendar days or longer among female industrial workers in various industries, by years, from 1929 to 1934, inclusive*

Year in which disability began	Sickness and nonindustrial injuries [1]	Percent of male rate	Sickness	Respiratory diseases [2]	Sickness exclusive of influenza	Nonrespiratory diseases	Nonindustrial injuries	Average number of women, all reporting establishments
1929	162.0	144	149.0	68.9	118.1	80.1	13.0	14,425
1930	145.3	154	132.5	49.8	117.1	82.7	12.8	13,582
1931	162.0	171	147.8	63.9	115.5	83.9	14.2	12,272
1932	158.4	162	143.6	71.6	101.1	72.0	14.8	13,520
1933	131.3	160	119.5	51.3	91.4	68.2	11.8	14,587
1934	143.6	184	131.1	52.9	108.2	78.2	12.5	15,644
5 preceding years [3]	151.8	158	138.5	61.1	108.7	77.4	13.3	13,677

[1] Industrial accidents, venereal diseases, and a few numerically unimportant causes of disability are not reported.
[2] Title numbers 11, 23, 104–115a, in the International List of the Causes of Death, fourth revision, Paris, 1929.
[3] 1929 to 1933 inclusive.

For the 5 years ending December 31, 1934, sickness incidence rates have been computed for specific disease groups according to sex (*cf.* table 6). The greatest excess of female over male rates was found in functional nervous disorders (neurasthenia and kindred conditions), the female rate for this type of illness being six times the male rate. The next greatest excess occurred in diseases of the genito-urinary system and annexa except nephritis, the female rate being about four times the male incidence. Diseases which occurred at two to three times the male rate are diseases of the pharynx and tonsils, bronchitis, appendicitis, "other" digestive diseases, ill-defined conditions, and the

group of "all other" diseases. Female industrial workers also experienced more 8-day or longer disabilities from influenza, respiratory tuberculosis, "other" respiratory diseases, diarrhea and enteritis, and infectious and parasitic diseases than the same number of male employees. The rates were about the same for nonindustrial accidents, diseases of the stomach except cancer, "other" diseases of the nervous system, diseases of the circulatory system, nephritis, and diseases of the skin. On account of the smaller proportion of industrially employed women than men at ages above 45, it seems obvious that the female rates for some of these diseases would be higher if the age factor were taken into account. Adjusted rates correcting for differences in the age composition of the two sexes could not be computed, however, on account of lack of data on the age distribution of members of the reporting associations. The younger average age of female employees may account in part for the relatively low rates found for pneumonia, rheumatism, and diseases of the organs of locomotion.

TABLE 6.—*Frequency of specified causes of disability according to sex, 1930–34, inclusive* [1]

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of the Causes of Death, 1929 revision)	Annual number of cases per 1,000—		Percent of male rate	Number of cases among—	
	Males	Females		Males	Females
Sickness and nonindustrial injuries	89.5	147.5	165	76,148	10,266
Nonindustrial injuries	12.2	13.2	108	10,373	917
Sickness	77.3	134.3	174	65,775	9,349
Respiratory diseases	31.6	57.5	182	26,853	4,003
Bronchitis, acute and chronic (106)	3.6	7.3	203	3,065	508
Diseases of the pharynx and tonsils (115a)	4.8	12.3	256	4,103	856
Influenza, grippe (11)	15.8	28.0	177	13,470	1,947
Pneumonia, all forms (107–109)	2.1	1.3	62	1,784	88
Tuberculosis of the respiratory system (23)	1.0	1.4	140	815	99
Other respiratory diseases (104–105, 110–114)	4.3	7.2	167	3,616	505
Digestive diseases	13.3	24.5	184	11,340	1,705
Diseases of the stomach, cancer excepted (117–118)	3.8	4.5	118	3,274	315
Diarrhea and enteritis (120)	1.2	2.3	192	1,047	158
Appendicitis (121)	3.7	10.3	278	3,128	717
Hernia (122a)	1.7	.3	18	1,406	24
Other digestive diseases (115b, 116, 122b–129)	2.9	7.1	245	2,485	491
Nonrespiratory, nondigestive diseases	32.4	52.3	161	27,582	3,641
Infectious and parasitic diseases (1–10, 12–22, 24–33, 36–44)	2.4	3.8	158	2,050	262
Rheumatism, acute and chronic (56, 57)	5.1	3.7	73	4,301	258
Neuralgia, neuritis, sciatica (87a)	2.1	2.5	119	1,796	173
Neurasthenia and the like (part of 87b)	1.1	6.9	627	964	478
Other diseases of the nervous system (78–85, part of 87b)	1.2	1.1	92	1,026	77
Diseases of the heart (90–95)	2.1	1.8	86	1,811	127
Other diseases of the circulatory system (96–103)	2.8	2.8	100	2,376	197
Nephritis, acute and chronic (130–132)	.7	.6	86	572	45
Other diseases of genito-urinary system and annexa (133–139)	2.3	9.8	426	1,980	680
Diseases of the skin (151–153)	3.0	3.4	113	2,560	236
Diseases of the organs of locomotion except diseases of the joints (156b)	3.1	1.6	52	2,653	111
Ill-defined and unknown causes (200)	1.8	4.2	233	1,540	291
All other diseases (45–55, 58–77, 88, 89, 140–150, 154–156a, 157, 162)	4.7	10.1	215	3,953	706

[1] Cases causing disability for less than 8 consecutive calendar days are not included. Industrial accidents, the venereal diseases, and certain numerically unimportant causes of disability are not reported.

Number of years of life under observation: Males, 851,233; females, 69,605.

AMOUNT OF TIME LOST ON ACCOUNT OF ILLNESS

Most of the data available on industrial morbidity is confined to sickness frequency or incidence, on account of the technical difficulties involved in sickness severity, or time-lost rates. Chief among these are the widely different maximum benefit periods for one illness or for sickness in any one year provided by different sick-benefit organizations, and the extension of the benefit period sometimes granted to individuals under the discretionary power allowed boards of directors of certain sick-benefit funds. Furthermore, some associations are administered more liberally than others. For these and other reasons, the time-lost data are not strictly comparable even for associations having ostensibly the same maximum period for which sick-benefits are paid. Nevertheless, for certain purposes it appeared feasible to present the average duration per case of disability, and the average number of days of disability per person during a 12-month period for 3 different benefit periods, e. g., 13, 26, and 52 weeks.

In associations having a benefit period of 13 weeks the average duration of disability was 37 calendar days per male case and 35 calendar days per female disability. (See tables 7 and 8.) The time-lost statistics presented in these tables include disability during the waiting period, i. e., the first 7 days of disabling sickness. Time lost was computed from the onset to the termination of incapacity in all cases which recovered before the expiration of the benefit period. For cases which extended beyond this period the time lost was computed from the onset of disability to the end of the benefit period regardless of whether benefits were extended by the board of directors, so as to make the data from different associations as nearly comparable as possible.

A somewhat longer average duration per case was found in the associations having a benefit period of 26 weeks, namely, 46 days per male case and 42 days per female illness. The average length of disability was much the same in the associations having a benefit period of 52 weeks as in those which had established the maximum period at 26 weeks.

Among the disease groups listed in tables 7 and 8, the shortest average duration per case is shown for diseases of the pharynx and tonsils, the longest for respiratory tuberculosis. The next longest average duration occurred in diseases of the nervous system. Other disease groups causing long periods of incapacitation are diseases of the heart, other diseases of the circulatory system, nephritis, other diseases of the genito-urinary system and annexa, hernia, rheumatism, and pneumonia.

TABLE 7.—*Calendar days of disability from cases which were closed in 1934, among the male members of 20 sick-benefit associations, by diseases and disease groups causing disability for 8 consecutive calendar days or longer*

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of the Causes of Death, 1929 revision)	Calendar days of disability per case [2]			Calendar days of disability per 1,000 males [2]			Number of cases which were closed in 1934		
	Benefit period in weeks			Benefit period in weeks			Benefit period in weeks		
	13	26	52	13	26	52	13	26	52
Sickness and nonindustrial injuries [1]	37.10	45.82	42.63	2,592	3,065	3,906	1,286	1,159	1,885
Nonindustrial injuries	37.26	44.52	38.02	324	452	429	160	176	232
Sickness	37.08	46.05	43.28	2,268	2,613	3,477	1,126	983	1,653
Respiratory diseases	26.34	34.75	29.76	635	694	965	444	346	667
Bronchitis, acute and chronic (106)	29.86	30.77	30.57	83	69	120	51	39	81
Diseases of pharynx and tonsils (115a)	17.70	23.45	15.14	77	115	100	80	85	136
Influenza, grippe (11)	20.87	29.87	24.82	217	221	308	191	128	255
Pneumonia, all forms (107–109)	42.39	60.67	51.55	71	95	95	31	27	38
Tuberculosis of respiratory system (23)	75.05	150.33	208.56	77	52	91	19	6	9
Other respiratory diseases (104–105, 110–114)	28.21	40.41	34.80	110	142	251	72	61	148
Digestive diseases	43.53	49.78	46.69	565	592	721	239	206	318
Diseases of stomach, cancer excepted (117–118)	40.48	47.70	60.41	185	157	200	84	57	68
Diarrhea and enteritis (120)	25.67	45.58	34.72	29	63	72	21	24	43
Appendicitis (121)	43.64	54.54	39.86	145	151	248	61	48	128
Hernia (122a)	53.66	57.73	65.42	102	100	76	35	30	24
Other digestive diseases (115b, 116, 122b–129)	50.66	44.55	46.82	104	121	125	38	47	55
Nonrespiratory, nondigestive diseases	44.35	53.33	55.16	1,068	1,327	1,791	443	431	668
Infectious and parasitic diseases (1–10, 12–22, 24–33, 36–44)	32.63	29.10	21.16	57	50	119	32	30	116
Rheumatism, acute and chronic (56, 57)	41.22	56.67	51.14	134	157	239	60	48	96
Neuralgia, neuritis, sciatica (87a)	48.13	56.25	44.51	79	65	93	30	20	43
Neurasthenia and the like (part 87b)	65.72	68.00	70.00	64	71	75	18	18	22
Other diseases of the nervous system (78–85, part of 87b)	55.75	114.78	152.40	48	119	148	16	18	20
Diseases of the heart (90–95)	57.67	76.00	137.31	113	132	234	36	30	35
Other diseases of the circulatory system (96–103)	45.71	73.71	81.60	122	209	230	49	49	58
Nephritis, acute and chronic (130–132)	54.33	72.00	84.00	18	4	41	6	1	10
Other diseases of genito-urinary system and annexa (133–138)	46.84	43.93	69.95	112	147	136	44	58	40
Diseases of the skin (151–153)	27.29	44.63	33.28	73	82	81	49	32	50
Diseases of the organs of locomotion except diseases of the joints (156b)	33.03	30.84	23.58	52	77	84	29	43	73
Ill-defined and unknown causes (200)	35.57	27.62	32.65	27	41	36	14	26	23
All other diseases (45–55, 58–77, 88, 89, 140–150, 154–156a, 157, 162)	51.95	51.64	69.10	169	173	275	60	58	82
Average number of males included in the record for year 1934							18,407	17,323	20,575
Number of sick-benefit associations included							8	6	6

[1] Industrial accidents, the venereal diseases, and a few numerically unimportant causes of disability are not included.

[2] Disability during the waiting period, i. e., the first 7 days of disability, is included.

TABLE 8.—*Calendar days of disability from cases which were closed in 1934, among the female members of 16 sick-benefit associations, by diseases and disease groups causing disability for 8 consecutive calendar days or longer*

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of the Causes of Death, 1929 revision)	Calendar days of disability per case [2]			Calendar days of disability per 1,000 females [2]			Number of cases which were closed in 1934		
	Benefit period in weeks			Benefit period in weeks			Benefit period in weeks		
	13	26	52	13	26	52	13	26	52
Sickness and nonindustrial injuries [1]	35.16	41.83	44.30	4,712	5,149	6,491	158	387	376
Nonindustrial injuries	21.00	36.03	39.72	213	367	495	12	32	32
Sickness	36.33	42.35	44.73	4,499	4,782	5,996	146	355	344
Respiratory diseases	25.24	27.06	33.17	1,328	1,171	2,055	62	136	159
Bronchitis, acute and chronic (106)	38.60	28.50	73.71	164	199	603	5	22	21
Diseases of pharynx and tonsils (115a)	15.90	18.07	15.26	153	247	256	12	43	43
Influenza, grippe (11)	21.24	25.02	25.95	612	374	657	34	47	65
Pneumonia, all forms (107–109)	71.50	73.00	30.33	243	93	36	4	4	3
Tuberculosis of respiratory system (23)	91.00	181.00	259.33	77	58	303	1	1	3
Other respiratory diseases (104–105, 110–114)	15.50	33.00	21.42	79	200	200	6	19	24
Digestive diseases	40.00	47.89	49.39	848	944	1,097	25	62	57
Diseases of stomach, cancer excepted (117–118)	56.50	37.00	57.25	96	118	178	2	10	8
Diarrhea and enteritis (120)	17.80	61.00	37.50	75	175	117	5	9	8
Appendicitis (121)	43.82	52.82	38.75	409	554	302	11	33	20
Hernia (122a)	43.00	------	------	36	------	------	1	0	0
Other digestive diseases (115b, 116, 122b–129)	45.50	30.70	61.05	232	97	500	6	10	21
Nonrespiratory, nondigestive diseases	46.42	53.41	57.01	2,323	2,667	2,844	59	157	128
Infectious and parasitic diseases (1–10, 12–22, 24–33, 36–44)	27.50	19.20	21.92	47	61	111	2	10	13
Rheumatism, acute and chronic (56, 57)	51.00	71.10	99.50	87	226	78	2	10	2
Neuralgia, neuritis, sciatica (87a)	47.60	80.86	70.14	202	180	191	5	7	7
Neurasthenia and the like (part of 87b)	48.86	53.95	85.94	290	361	536	7	21	16
Other diseases of the nervous system (78–85, part of 87b)	------	189.00	32.00	------	60	12	0	1	1
Diseases of the heart (90–95)	46.43	92.25	47.00	276	117	37	7	4	2
Other diseases of the circulatory system (96–103)	51.00	24.57	32.14	259	55	88	6	7	7
Nephritis, acute and chronic (130–132)	------	------	------	------	------	------	0	0	0
Other diseases of genito-urinary system and annexa (133–139)	24.38	58.15	53.76	165	610	356	8	33	17
Diseases of the skin (151–153)	48.25	30.29	38.10	163	135	148	4	14	10
Diseases of the organs of locomotion except diseases of the joints (156b)	66.67	24.00	20.33	170	31	24	3	4	3
Ill-defined and unknown causes (200)	50.50	51.47	40.80	257	278	80	6	17	5
All other diseases (45–55, 58–77, 88, 89, 140–150, 154–156a, 157, 162)	53.33	59.97	67.47	407	553	1,183	9	29	45
Average number of females included in the record for year 1934	------	------	------	------	------	------	1,179	3,144	2,566
Number of sick-benefit associations included	------	------	------	------	------	------	6	5	5

[1] Industrial accidents, the venereal diseases, and a few numerically unimportant causes of disability are not included.
[2] Disability during the waiting period, i. e., the first 7 days of disability, is included.

A sickness rate of special interest is the number of days lost on account of illness per person per year, because it is the product of the rate of occurrence of disease (frequency) and its severity (duration). Exclusive of cases causing disability for less than 1 week, sickness and nonindustrial accidents caused a time loss in 1934 of 2.6 calendar days per male, and 4.7 per female member of associations having a benefit period of 13 weeks. In associations having a 26 weeks' benefit

period, the male rate was 3.1 days per person, the female rate 5.1. Under a maximum benefit period of 52 weeks, the number of days of disability per male member was 3.9 calendar days, per female member, 6.5 days. When the benefit period is less than 52 weeks, it is obvious that the full record of disabilities lasting an entire year is not obtained.

The diseases and conditions which caused the largest amount of time lost in 1934 among male industrial workers who belonged to reporting associations having a benefit period of 52 weeks, appear in the order of their importance as follows: (1) Nonindustrial accidents; (2) influenza or grippe; (3) "other" respiratory diseases; (4) appendicitis; (5) rheumatism (acute and chronic); (6) diseases of the heart; (7) other diseases of the circulatory system; (8) diseases of the stomach, cancer excepted; (9) diseases of the genito-urinary system and annexa; and (10) "other" diseases of the nervous system.

On account of the relatively small number of women included in the sick-benefit association records available, a word of caution appears advisable against too detailed comparison of the rates by sex. However, there seems to be sufficient evidence that certain disease groups are relatively more important from the standpoint of time lost to female than to male industrial workers. Neurasthenia, for example, appears to account for a larger proportion of the number of days of disability among women than among male employees. Similarly, diseases of the genito-urinary system and annexa, and diseases of the pharynx and tonsils probably rank higher in the list of important causes of lost time among women than among men in industry. The female time lost rates as well as their incidence rates, it will be observed, were generally higher than the corresponding rates for males.

SUMMARY

1. The frequency of cases of sickness causing disability for more than 1 week among approximately 175,000 male industrial workers was lower in 1934 than in any other year since the record was started in 1921. Compared with 1929 the sickness incidence rate has decreased almost one-third.

2. Influenza, which is one of the major causes of morbidity, occurred in 1934 at the lowest rate in 14 years.

3. The frequency of new cases of respiratory tuberculosis among male employees of the reporting industrial establishments decreased 58 percent between the years 1922 and 1934. A somewhat smaller decrease (36 percent) occurred in the incidence rate of pneumonia, all forms.

4. Divergent trends are manifested in the frequency of different nonrespiratory disease groups.

5. The incidence rate of 8-day or longer disabilities was 58 percent higher among female than among male industrial workers during the 5 years ending December 31, 1933, although the comparison excluded nearly all diseases not common to both sexes, and in spite of the fact that the average age of female workers is younger than that of male industrial employees.

6. Certain kinds of illness common to both sexes were found to occur much more often among female than among male workers. A few diseases, however, occurred at definitely lower frequency than was recorded for the men.

7. The average number of days of disability per case and the annual number of days of disability per person were computed from the record of time lost from cases which terminated in 1934. In that year illnesses and nonindustrial accidents lasting longer than 1 week caused 3.9 calendar days of disability per male, and 6.5 days per female member of reporting associations having a benefit period of 52 weeks.

8. Diseases and conditions causing a large amount of time lost from work are nonindustrial accidents, influenza, appendicitis, rheumatism, and, among women, neurasthenia.

A STUDY OF FACTORS AFFECTING NATURAL INSIDE ILLUMINATION [1]

Until recently little information has been available on the effect of the height, width, location, and orientation of the windows upon the lighting of a room. Also, much of the information that has been published thus far has been based upon measurements made with small models. The present study was made with a full-sized building erected especially for the purpose, actual daylight being the source of illumination. In this building, measurements were made with the ceiling and walls painted a mat white, and also a mat black, so that the effect of the light reflected from the ceiling and walls could be determined. Furthermore, at the same time that measurements of illumination were made within the building, measurements were made of the brightness of the particular portion of the sky producing the illumination within the building. Thus it has been possible for the first time to correlate illumination within an actual building with the brightness of the sky, measured out of doors, producing it, and to reduce the results to the basis of foot-candles per unit of sky brightness. Allowance was also made for the light reflected and absorbed by the glass of the window and, in the final analysis, allow-

[1] Studies in illumination. IV. A study of the effect of the height and width of windows and of the reflecting power of the walls and ceiling upon the natural illumination within a building. By J. E. Ives, F. L. Knowles, and L. R. Thompson. Pub. Health Bull. No. 218.

ance was made for the light lost by the obstruction of sash bars and casings, and by dirt on the glass.

The experimental building in which the studies were made is situated on a knoll on the grounds of the Department of Agriculture Experiment Farm in Arlington, Va., across the Potomac from Washington.

The building is orientated accurately north and south so that the sides face north, west, south, and east, respectively. It is built of wood, except the window sash, which is of steel. The building is 30 feet square and approximately 15 feet from the floor to the eaves.

The study was made with light from the sky alone; no investigation was made of the effect of direct sunlight entering the windows. The illumination was measured on a horizontal plane 36 inches above the floor at 36 stations within the building, for window widths of 9 75, 17 25, and 27 feet, and for window heights of 6, 9, and 12 feet for each of these widths.

From the results obtained for the three combinations used, viz, white ceiling and white walls, white ceiling and black walls, and black ceiling and black walls, the illumination has been separated into its three components—that coming directly from the window, that reflected from the ceiling, and that reflected from the walls. These three components of the illumination are shown on a distribution chart for 25 points in the room, spaced 5 feet apart, for 15 different combinations of window width and window height The distribution chart gives the distribution of the illumination on a horizontal plane 36 inches above the floor, for any combination of window width, window height, and for reflecting powers of ceiling and walls of 0 and 78 percent. If the average brightness of the sky seen through the window is known, the intensity of the illumination at any point in a comparable room can be found by multiplying the figures on the chart by the average brightness of the sky expressed in hundreds of candles per square foot.

Figures are given showing the brightness of different portions of the clear north sky at Washington, D. C., for different times of the day and for different seasons of the year. Information is also given as to the average brightness of the sky for different regions and latitudes in the United States, for different seasons of the year and different times of the day.

A method has been developed for determining the illumination produced by light from the sky within a building having vertical windows of given dimensions, for any time of day or season of the year in the United States.

EXTENT OF RURAL HEALTH SERVICE IN THE UNITED STATES, DECEMBER 31, 1930–DECEMBER 31, 1934

During the year 1934 data concerning the extent of rural health service were again obtained by the United States Public Health Service from State departments of health. This information has been compiled in table 1, wherein are shown, by States, the counties, townships, or districts in which the rural sections thereof were provided with health service under the administration of whole-time local health officers. The data are presented as of December 31, for the years 1930 to 1934, inclusive.

In the list for the year ended December 31, 1934, there are included all counties, townships, or districts which were operated in units directed by whole-time local health officers and maintained by the pooling of local appropriations from official sources. Counties, townships, or districts with whole-time health organizations maintained entirely by State departments of health are also included in table 1.

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*

ALABAMA

1930	1931	1932	1933	1934
Baldwin	Baldwin	Baldwin	Barbour	Autauga
Barbour	Barbour	Barbour	Blount	Barbour
Blount	Blount	Blount	Bullock	Blount
Bullock	Bullock	Bullock	Calhoun	Bullock
Calhoun	Calhoun	Calhoun	Chambers	Calhoun
Chambers	Chambers	Chambers	Cherokee	Chambers
Cherokee	Cherokee	Cherokee	Cleburne	Cherokee
Choctaw	Choctaw	Choctaw	Conecuh	Cleburne
Clarke	Clarke	Clarke	Covington	Colbert
Cleburne	Cleburne	Cleburne	Crenshaw	Conecuh
Coffee	Coffee	Coffee	Cullman	Covington
Colbert	Colbert	Colbert	Dale	Crenshaw
Conecuh	Conecuh	Conecuh	Dallas	Cullman
Covington	Covington	Covington	De Kalb	Dale
Crenshaw	Crenshaw	Crenshaw	Elmore	Dallas
Cullman	Cullman	Cullman	Escambia	Elmore
Dale	Dale	Dale	Etowah	Escambia
Dallas	Dallas	Dallas	Franklin	Etowah
De Kalb	De Kalb	De Kalb	Geneva	Franklin
Elmore	Elmore	Elmore	Houston	Houston
Escambia	Escambia	Escambia	Jackson	Jackson
Etowah	Etowah	Etowah	Jefferson	Jefferson
Franklin	Franklin	Franklin	Lauderdale	Lamar
Geneva	Geneva	Geneva	Lawrence	Lauderdale
Houston	Houston	Houston	Lee	Lawrence
Jackson	Jackson	Jackson	Limestone	Lee
Jefferson	Jefferson	Jefferson	Macon	Limestone
Lamar	Lamar	Lamar	Madison	Lowndes
Lauderdale	Lauderdale	Lauderdale	Marengo	Macon
Lawrence	Lawrence	Lawrence	Marion	Madison
Lee	Lee	Lee	Marshall	Marengo
Limestone	Limestone	Limestone	Mobile	Marion
Lowndes	Lowndes	Lowndes	Monroe	Marshall
Macon	Macon	Macon	Montgomery	Mobile
Madison	Madison	Madison	Morgan	Monroe
Marengo	Marengo	Marengo	Perry	Montgomery
Marion	Marion	Marion	Pickens	Morgan
Marshall	Marshall	Marshall	Pike	Perry
Mobile	Mobile	Mobile	Shelby	Pickens
Monroe	Monroe	Monroe	Sumter	Pike
Montgomery	Montgomery	Montgomery	Talladega	Russell

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

ALABAMA—Continued

1930	1931	1932	1933	1934
Morgan	Morgan	Morgan	Tallapoosa	Shelby
Perry	Perry	Perry	Tuscaloosa	Sumter
Pickens	Pickens	Pickens	Walker	Talladega
Pike	Pike	Pike	Washington	Tallapoosa
Shelby	Shelby	Shelby	Wilcox	Tuscaloosa
Sumter	Sumter	Sumter		Walker
Talladega	Talladega	Talladega		Washington
Tallapoosa	Tallapoosa	Tallapoosa		Wilcox
Tuscaloosa	Tuscaloosa	Tuscaloosa		Winston
Walker	Walker	Walker		
Washington	Washington	Washington		
Wilcox	Wilcox	Wilcox		
Winston	Winston	Winston		

ARIZONA

Cochise	Cochise	Cochise	Cochise	Cochise
Coconino	Gila	Gila	Gila	Gila
Gila	Maricopa	Maricopa	Maricopa	Maricopa
Maricopa	Pima	Pima	Pima	Pima
Pima	Yuma			
Yuma				

ARKANSAS

Arkansas	Arkansas [1]	Arkansas [1]	Ashley	Ashley
Ashley	Ashley	Ashley	Clark	Clark
Clark	Bradley	Bradley	Conway	Conway
Conway	Clark	Chicot	Crittenden	Crittenden
Cross	Cleburne	Clark	Cross	Cross
Desha	Conway	Cleveland	Faulkner	Garland
Drew	Crittenden	Conway	Garland	Jackson
Garland	Cross	Crittenden	Jackson	Jefferson
Jackson	Desha	Cross	Jefferson	Little River
Jefferson	Drew	Drew	Little River	Mississippi
Little River	Garland	Garland	Lonoke	Monroe
Lonoke	Jackson	Jackson	Mississippi	Ouachita
Mississippi	Jefferson	Jefferson	Monroe	Phillips
Monroe	Little River	Lincoln	Ouachita	Pope
Ouachita	Lonoke [1]	Little River	Phillips	Pulaski
Phillips	Miller	Lonoke [1]	Pope	Saline
Pope	Mississippi	Mississippi	Pulaski	Sebastian
Pulaski	Monroe	Monroe	Saline	Woodruff
Saline	Ouachita	Ouachita	Sebastian	Yell
Sebastian	Perry	Phillips	Woodruff	
Union	Phillips	Pope	Yell	
White	Pope	Prairie [1]		
Woodruff	Prairie [1]	Pulaski		
Yell	Pulaski	Saline		
	Saline	Sebastian		

[1] 1 district of 3 counties.

CALIFORNIA

Contra Costa	Contra Costa	Contra Costa	Contra Costa	Alameda
Imperial	Imperial	Imperial	Imperial	Contra Costa
Los Angeles	Los Angeles	Los Angeles	Los Angeles	Imperial
Madera	Madera	Madera	Madera	Los Angeles
Monterey	Monterey	Monterey	Monterey	Madera
Orange	Orange	Orange	Orange	Monterey
Riverside	Riverside	Riverside	Riverside	Orange
San Diego	San Bernardino	San Bernardino	San Bernardino	Riverside
San Joaquin	San Diego	San Diego	San Diego	San Bernardino
San Luis Obispo	San Joaquin	San Joaquin	San Joaquin	San Diego
Santa Barbara	San Luis Obispo	San Luis Obispo	San Luis Obispo	San Joaquin
Stanislaus	Santa Barbara	Santa Barbara	Santa Barbara	San Luis Obispo
Yolo	Stanislaus	Stanislaus	Stanislaus	San Mateo
	Yolo	Yolo		Santa Barbara
				Stanislaus

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

COLORADO

1930	1931	1932	1933	1934
Otero	Otero			

CONNECTICUT

1930	1931	1932	1933	1934
Fairfield [1]	Fairfield [1]	Fairfield [1] West Hartford [1]	Fairfield [1] West Hartford [1]	Fairfield [1] West Hartford [1]

[1] Township.

DELAWARE

1930	1931	1932	1933	1934
Kent Newcastle Sussex	Kent Newcastle Sussex	Kent Newcastle Sussex	Kent Newcastle Sussex	Kent Newcastle Sussex

FLORIDA

1930	1931	1932	1933	1934
Leon Manatee Taylor	Leon Taylor	Escambia Leon Taylor	Escambia Leon	Escambia Leon

GEORGIA

1930	1931	1932	1933	1934
Baldwin Bartow Bibb Brooks Chatham Clarke Clinch Cobb Coffee Colquitt Decatur De Kalb Dougherty Floyd Glynn Grady Hall Jefferson Jenkins Laurens Lowndes Mitchell Richmond Spalding Sumter Thomas Troup Walker Ware Washington	Baldwin Bartow Bibb Brooks Catoosa [1] Chatham Chattooga [2] Clarke Cobb Coffee Colquitt Dade [2] Decatur De Kalb Dougherty Floyd Glynn Gordon [1] Grady Hall Jefferson Jenkins Laurens Lowndes Mitchell Murray [1] Richmond Spalding Sumter Thomas Troup Walker [2] [3] Ware Washington Whitfield [1]	Baldwin Bartow Bibb Brooks Catoosa [2] Chatham Clarke Cobb Colquitt Dade [2] Decatur De Kalb Dougherty Floyd Fulton Glynn Grady Hall Jefferson Jenkins Laurens Lowndes Mitchell Richmond Spalding Sumter Thomas Troup Walker [2] Ware Washington	Baldwin Bartow Bibb Brooks Catoosa [4] Chatham Clarke Cobb Colquitt Decatur De Kalb Dougherty Floyd Fulton Glynn Grady Hall Jefferson Jenkins Laurens Lowndes Mitchell Richmond Spalding Sumter Thomas Troup Walker [4] Ware Washington	Baldwin Bartow Bibb Camden [2] Catoosa [4] Chatham Clarke Cobb Colquitt Decatur De Kalb Dougherty Floyd Glynn [2] Grady Hall Jefferson Jenkins Laurens Lowndes Mitchell McIntosh [2] Richmond Spalding Sumter Thomas Troup Walker [4] Ware Washington

[1] Included in 1 district of 4 counties.
[2] Included in 1 district of 3 counties.
[3] Walker County also included in a tricounty district.
[4] Included in 1 district of 2 counties.

Table 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

IDAHO

1930	1931	1932	1933	1934
Twin Falls	Twin Falls	Twin Falls		

ILLINOIS

1930	1931	1932	1933	1934
Du Page	Du Page	Du Page	Du Page	Du Page
Morgan				

IOWA

1930	1931	1932	1933	1934
Washington	Des Moines	Des Moines	Woodbury	Woodbury
Woodbury	Washington	Washington		
	Woodbury	Woodbury		

KANSAS

1930	1931	1932	1933	1934
Brown	Brown	Brown	Geary	Lyon
Butler	Butler	Geary	Lyon	Sedgwick
Cherokee	Cherokee	Lyon	Sedgwick	Shawnee
Dickinson	Dickinson	Marion	Shawnee	
Geary	Geary	Sedgwick		
Greenwood	Greenwood	Shawnee		
Lyon	Lyon			
Marion	Marion			
Ottawa	Sedgwick			
Sedgwick	Shawnee			
Seward				
Shawnee				

KENTUCKY

1930	1931	1932	1933	1934
Bell	Adair	Adair	Adair	Adair
Boyd	Allen	Allen	Allen	Allen
Breathitt	Anderson	Anderson	Anderson	Anderson
Bullitt	Barren	Barren	Barren	Barren
Calloway	Bath	Bath	Bath	Bath
Carlisle	Bell	Bell	Bell	Boyd
Carter	Boyd	Boyd	Boyd	Breathitt
Daviess	Breathitt	Breathitt	Breathitt	Butler
Elliott	Bullitt	Bullitt	Bullitt	Caldwell
Estill	Butler	Butler	Butler	Calloway
Fayette	Caldwell	Caldwell	Caldwell	Carlisle
Floyd	Calloway	Calloway	Calloway	Carter
Fulton	Carlisle	Carlisle	Carlisle	Casey
Henderson	Carter	Carter	Carter	Clinton
Hickman	Casey	Casey	Casey	Edmonson
Hopkins	Clinton	Clinton	Clinton	Elliott
Jefferson	Daviess	Daviess	Daviess	Estill
Kenton	Edmonson	Edmonson	Edmonson	Fayette
Knott	Elliott	Elliott	Elliott	Fleming
Knox	Estill	Estill	Estill	Floyd
Lawrence	Fayette	Fayette	Fayette	Fulton
Lee	Fleming	Fleming	Fleming	Gallatin
Leslie	Floyd	Floyd	Floyd	Grant
Letcher	Fulton	Fulton	Fulton	Grayson
Lincoln	Gallatin	Gallatin	Gallatin	Green
Madison	Grant	Grant	Grant	Greenup
Magoffin	Grayson	Grayson	Grayson	Hart
Martin	Green	Green	Green	Henderson
Mason	Greenup	Greenup	Greenup	Hickman
McLean	Hancock	Hancock	Hart	Hopkins
Menifee	Harrison	Hart	Henderson	Jackson
Monroe	Hart	Henderson	Hickman	Jefferson
Morgan	Henderson	Hickman	Hopkins	Kenton
Muhlenberg	Hickman	Hopkins	Jackson	Knott
Ohio	Hopkins	Jackson	Jefferson	Knox
Owsley	Jackson	Jefferson	Kenton	Laurel
Perry	Jefferson	Kenton	Knott	Lawrence
Pike	Kenton	Knott	Knox	Lee
Scott	Knott	Knox	Laurel	Leslie
Trigg	Knox	Laurel	Lawrence	Letcher
Union	Laurel	Lawrence	Lee	Lincoln

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

KENTUCKY—Continued

1930	1931	1932	1933	1934
Wayne	Lawrence	Lee	Leslie	Madison
Webster	Lee	Leslie	Letcher	Marshall
	Leslie	Letcher	Lincoln	Martin
	Letcher	Lewis	Madison	Mason
	Lewis	Lincoln	Magoffin	McCreary
	Lincoln	McCreary	Marshall	McLean
	McCreary	McLean	Martin	Meade
	McLean	Madison	Mason	Menifee
	Madison	Magoffin	McCreary	Metcalfe
	Magoffin	Marshall	McLean	Monroe
	Marshall	Martin	Meade	Muhlenberg
	Martin	Mason	Menifee	Nicholas
	Mason	Meade	Monroe	Ohio
	Meade	Menifee	Muhlenberg	Owsley
	Menifee	Metcalfe	Nicholas	Perry
	Metcalfe	Monroe	Ohio	Pike
	Monroe	Morgan	Owsley	Powell
	Morgan	Muhlenberg	Perry	Pulaski
	Muhlenberg	Nicholas	Pike	Rockcastle
	Nicholas	Ohio	Powell	Rowan
	Ohio	Owsley	Pulaski	Scott
	Owen	Perry	Rockcastle	Todd
	Owsley	Pike	Rowan	Trigg
	Perry	Powell	Scott	Trimble
	Pike	Pulaski	Todd	Union
	Powell	Robertson	Trigg	Warren
	Pulaski	Rockcastle	Trimble	Wayne
	Robertson	Rowan	Union	Webster
	Rockcastle	Scott	Warren	Wolfe
	Rowan	Todd	Wayne	
	Scott	Trigg	Webster	
	Todd	Trimble	Wolfe	
	Trigg	Union		
	Trimble	Warren		
	Union	Wayne		
	Warren	Webster		
	Wayne	Whitley		
	Webster	Wolfe		
	Whitley			
	Wolfe			

LOUISIANA[1]

1930	1931	1932	1933	1934
Assumption	Assumption	Assumption	Assumption	Assumption
Avoyelles	Avoyelles	Avoyelles	Avoyelles	Avoyelles
Caddo	Caddo	Caddo	Caddo	Caddo
Caldwell	Caldwell	Caldwell	Caldwell	Caldwell
Catahoula	Catahoula	Catahoula	Catahoula	Catahoula
Claiborne	Claiborne	Claiborne	Claiborne	Claiborne
Concordia	Concordia	Concordia	Concordia	Concordia
De Soto	De Soto	De Soto	De Soto	De Soto
East Carroll	East Carroll	East Carroll	East Carroll	East Carroll
Franklin	Evangeline	Franklin	Franklin	Franklin
Iberia	Franklin	Iberia	Iberia	Iberia
Iberville	Iberia	Iberville	Iberville	Iberville
Lafayette	Iberville	Lafayette	Lafayette	Lafayette
Lafourche	Lafayette	Lafourche	Lafourche	Lafourche
La Salle	Lafourche	La Salle	La Salle	La Salle
Lincoln	La Salle	Lincoln	Lincoln	Lincoln
Madison	Lincoln	Madison	Madison	Madison
Morehouse	Madison	Morehouse	Morehouse	Morehouse
Natchitoches	Morehouse	Natchitoches	Natchitoches	Natchitoches
Ouachita	Natchitoches	Ouachita	Ouachita	Ouachita
Point Coupee	Ouachita	Point Coupee	Point Coupee	Point Coupee
Rapides	Point Coupee	Rapides	Rapides	Rapides
Richland	Rapides	Richland	Richland	Red River
St. Landry	Richland	St. Landry	St. Landry	Richland
St. Martin	St. Landry	St. Martin	St. Martin	St. Landry
St. Mary	St. Martin	St. Mary	St. Mary	St. Martin
Tensas	St. Mary	Tensas	Tensas	St. Mary
Terrebonne	Tensas	Terrebonne	Terrebonne	Tensas
Washington	Terrebonne	Washington	Washington	Terrebonne
Webster	Washington	Webster	Webster	Washington
West Carroll	Webster	West Carroll	West Carroll	Webster
	West Carroll			West Carroll

[1] Parishes.

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

MAINE

1930	1931	1932	1933	1934
Motbov Union [1]	Bar Harbor	Bar Harbor	Bar Harbor	Bar Harbor
Rumford [3]	Bucksport	Cooperative Health Union [4]	Cooperative Health Union [4]	Cooperative Health Union [5]
Sanford [3]	Cooperative Health Union [4]	Motbov Union [1]	Motbov Union [1]	Motbov Union [1]
Vassalboro [3]	Motbov Union [1]	Rumford [3]	Rumford [3]	Rumford [3]
	Rumford [3]	Sanford [3]	Sanford [3]	Sanford [3]
	Sanford [3]			

[1] Including municipalities of Orono, Milford, Bradley, Veazie, and Old Town.
[3] Town (township) wholly or partly rural.
[4] Including towns of Avon, Chesterville, Eustis, Livermore, Phillips, Rangeley, Strong, Temple, Weld, and Wilton.
[5] Including towns of Avon, Chesterville, Dallas Pl., Eustis, Farmington, Industry, Livermore, Lang Pl., New Sharon, Rangeley, Sandy River Pl., Strong, Temple, and Weld. (Farmington, Industry, Dallas Pl., New Sharon added in 1934.)

MARYLAND

1930	1931	1932	1933	1934
Allegany	Allegany	Allegany	Allegany	Allegany
Anne Arundel	Anne Arundel	Anne Arundel	Anne Arundel	Anne Arundel
Baltimore	Baltimore	Baltimore	Baltimore	Baltimore
Calvert	Calvert	Calvert	Calvert	Calvert
Carroll	Carroll	Carroll	Carroll	Caroline
Cecil	Cecil	Cecil	Cecil	Carroll
Frederick	Dorchester	Charles	Charles	Cecil
Harford	Frederick	Dorchester	Dorchester	Charles
Kent	Garrett	Frederick	Frederick	Dorchester
Montgomery	Harford	Garrett	Garrett	Frederick
Prince Georges	Kent	Harford	Harford	Garrett
Talbot	Montgomery	Howard	Howard	Harford
Washington	Prince Georges	Kent	Kent	Howard
Wicomico	Queen Annes	Montgomery	Montgomery	Kent
	Talbot	Prince Georges	Prince Georges	Montgomery
	Washington	Queen Annes	Queen Annes	Prince Georges
	Wicomico	Somerset	St Marys	Queen Annes
	Worcester	Talbot	Somerset	St Marys
		Washington	Talbot	Somerset
		Wicomico	Washington	Talbot
		Worcester	Wicomico	Washington
			Worcester	Wicomico
				Worcester

MASSACHUSETTS

1930	1931	1932	1933	1934
Barnstable	Barnstable	Barnstable	Barnstable	Barnstable
	Nashoba	Nashoba [1]	Nashoba [1]	Nashoba [1]
	Southern Berkshire	Southern Berkshire [2]	Southern Berkshire [2]	Southern Berkshire [2]

[1] Represents 14 towns
[2] Represents 16 towns.

MICHIGAN

1930	1931	1932	1933	1934
Alcona [3]	Alcona [3]	Alcona [3]	Alcona [3]	Alcona [3]
Alpena [3]	Alpena [3]	Allegan	Allegan	Allegan
Antrim [3]	Antrim [3]	Alpena [3]	Alpena [3]	Alpena [3]
Charlevoix [3]	Barry	Antrim [3]	Antrim [3]	Antrim [3]
Cheboygan [3]	Charlevoix [3]	Barry	Barry	Barry
Crawford [3]	Cheboygan [3]	Charlevoix [3]	Charlevoix [3]	Charlevoix [3]
Emmet [3]	Crawford [3]	Cheboygan [3]	Cheboygan [3]	Cheboygan [3]
Genesee	Emmet [3]	Crawford [3]	Crawford [3]	Crawford [3]
Iosco [3]	Genesee	Emmet [3]	Eaton	Eaton
Isabella	Iosco [3]	Genesee	Emmet [3]	Emmet [3]
Kalkaska [3]	Isabella	Iosco [3]	Genesee	Genesee
Kent	Kalkaska [3]	Isabella	Iosco [3]	Grosse Pointe [5]
Midland	Kent	Kalkaska [3]	Isabella	Hillsdale
Missaukee [3]	Midland	Kent	Kalkaska [3]	Iosco [3]
Montmorency [3]	Missaukee [3]	Lake [4]	Kent	Isabella
Oakland	Montmorency [3]	Midland	Lake [4]	Kalkaska [3]

[3] Included in 4 districts of 4 counties each.
[4] Included in 1 district of 3 counties.
[5] Township; includes 5 villages.

Table 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

MICHIGAN—Continued

1930	1931	1932	1933	1934
Ogemaw [3]	Oakland	Missaukee [3]	Midland	Kent
Oscoda [3]	Ogemaw [3]	Montmorency [3]	Missaukee [3]	Lake [4]
Otsego [3]	Oscoda [3]	Newaygo [4]	Montmorency [3]	Midland
Ottawa	Otsego [3]	Oakland	Newaygo [4]	Missaukee [3]
Presque Isle [3]	Ottawa	Oceana [4]	Oakland	Montmorency [3]
Roscommon [3]	Presque Isle [3]	Ogemaw [3]	Oceana [4]	Newaygo [4]
Saginaw	Roscommon [3]	Oscoda [3]	Ogemaw [3]	Oakland
Wexford	Saginaw	Otsego [3]	Oscoda [3]	Oceana [4]
	Wexford	Ottawa	Otsego [3]	Ogemaw [3]
		Presque Isle [3]	Ottawa	Oscoda [3]
		Roscommon [3]	Presque Isle [3]	Otsego [3]
		Saginaw	Roscommon [3]	Ottawa
		Wexford	Saginaw	Presque Isle [3]
			Wexford	Roscommon [3]
				Saginaw
				Van Buren
				Wexford

[3] Included in 4 districts of 4 counties each. [4] Included in 1 district of 3 counties.

MINNESOTA

1930	1931	1932	1933	1934
St. Louis	St. Louis	St. Louis	St. Louis	St. Louis

MISSISSIPPI

1930	1931	1932	1933	1934
Adams	Adams	Adams	Adams	Adams
Bolivar	Bolivar	Bolivar	Bolviar	Bolivar
Clarke	Clarke	Coahoma	Coahoma	Coahoma
Coahoma	Coahoma	Copiah	Forrest	Copiah
Copiah	Copiah	Forrest	Hancock	Forrest
Forrest	Forrest	Hancock	Harrison	Hancock
Hancock	Hancock	Harrison	Hinds	Harrison
Harrison	Harrison	Hinds	Holmes	Hinds
Hinds	Hinds	Holmes	Humphreys	Holmes
Holmes	Holmes	Humphreys	Jackson	Humphreys
Humphreys	Humphreys	Jackson	Lamar	Jackson
Issaquena	Issaquena	Lamar	Lauderdale	Lamar
Jackson	Jackson	Lauderdale	Lee	Lauderdale
Lamar	Lamar	Lee	Leflore	Lee
Lauderdale	Lauderdale	Leflore	Lincoln	Leflore
Lee	Lee	Lincoln	Monroe	Lincoln
Leflore	Leflore	Monroe	Pearl River	Monroe
Lincoln	Lincoln	Pearl River	Pike	Pearl River
Monroe	Monroe	Perry	Sharkey	Pike
Pearl River	Pearl River	Pike	Sunflower	Sharkey
Perry	Perry	Sunflower	Union	Sunflower
Sharkey	Pike	Union	Warren	Union
Sunflower	Sharkey	Warren	Washington	Warren
Tishomingo	Sunflower	Washington	Yazoo	Washington
Union	Tishomingo	Yazoo		Yazoo
Warren	Union			
Washington	Warren			
Yazoo	Washington			
	Yazoo			

MISSOURI

1930	1931	1932	1933	1934
Boone	Boone	Boone	Buchanan	Buchanan
Buchanan	Buchanan	Buchanan	Dunklin	Dunklin
Dunklin	Dunklin	Dunklin	Greene	Greene
Greene	Greene	Greene	Jackson	Jackson
Jackson	Jackson	Jackson	Marion	Marion
Marion	Marion	Marion	Miller	Miller
Miller	Miller	Miller	New Madrid	New Madrid
New Madrid	New Madrid	New Madrid	Pemiscot	St. Louis
Nodaway	Pemiscot	Pemiscot	St. Louis	
Pemiscot	St. Louis	St. Louis		
St. Francois	Scott			
St. Louis				
Scott				

Table 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31* —Continued

MONTANA

Casacde	Cascade	Cascado	Cascade	Cascade
Gallatin	Gallatin	Gallatin	Gallatin	Gallatin
Lewis and Clark	Lewis and Clark	Lewis and Clark	Lewis and Clark	Lewis and Clark
Missoula	Missoula	Missoula	Missoula	Missoula

NEW MEXICO

Bernalillo	Bernalillo	Bernalillo	Bernalillo	Bernalillo
Dona Ana	Dona Ana	Dona Ana	Dona Ana	Dona Ana
Eddy	Eddy	Eddy	Eddy	Eddy
Lea	Santa Fe	Santa Fe	Santa Fe	Santa Fe
McKinley	Union	Union	Union	Union
Santa Fe	Valencia	Valencia	Valencia	Valencia
Union				
Valencia				

NEW YORK

Cattaraugus	Cattaraugus	Cattaraugus	Cattaraugus	Cattaraugus
Cortland	Cortland	Cortland	Columbia	Columbia
Suffolk	Suffolk	Suffolk	Cortland	Cortland
Westchester	Westchoster	Westchester	Suffolk	Suffolk
			Westchester	Westchester

NORTH CAROLINA

Beaufort	Beaufort	Beaufort	Beaufort	Beaufort
Bertie	Bladen	Bladen	Bladen	Bertie
Bladen	Buncombe	Buncombe	Buncombe	Bladen
Buncombe	Cabarrus	Cabarrus	Cabarrus	Buncombe
Cabarrus	Columbus	Columbus	Columbus	Cabarrus
Cherokee	Cumberland	Cumberland	Cumberland	Columbus
Columbus	Davidson	Davidson	Davidson	Cumberland
Craven	Durham	Durham	Durham	Davidson
Cumberland	Edgecombe	Edgecombe	Edgecombe	Duplin
Davidson	Forsyth	Forsyth [1]	Forsyth [1]	Durham
Durham	Franklin	Franklin	Franklin	Edgecombe
Edgecombe	Gaston	Gaston	Gaston	Forsyth [1]
Forsyth	Granville	Granville	Granville	Franklin
Franklin	Guilford	Guilford	Guilford	Gaston
Gaston	Halifax	Halifax	Halifax	Granville
Guilford	Johnston	Lenoir	Hyde	Guilford
Granville	Lenoir	Mecklenburg	Lenoir	Halifax
Halifax	Mecklenburg	Moore	Mecklenburg	Haywood [2]
Henderson	Moore	New Hanover	Moore	Hyde
Johnston	New Hanover	Northampton	Nash	Jackson [2]
Lenoir	Northampton	Pitt	New Hanover	Lenoir
Mecklenburg	Pitt	Randolph	Northampton	Mecklenburg
Moore	Randolph	Richmond	Pitt	Moore
Nash	Richmond	Robeson	Randolph	New Hanover
New Hanover	Robeson	Rowan	Richmond	Northampton
Northampton	Rowan	Rutherford	Robeson	Pitt
Pitt	Rutherford	Sampson	Rowan	Randolph
Randolph	Sampson	Stokes [1]	Sampson	Richmond
Richmond	Stokes	Surry	Stokes [1]	Robeson
Robeson	Surry	Vance	Surry	Rowan
Rowan	Vance	Wake	Vance	Rutherford
Rutherford	Wake	Wayne	Wake	Sampson
Sampson	Wayne	Wilkes	Wayne	Stokes [1]
Surry	Wilkes	Wilson	Wilkes	Surry
Vance	Wilson	Yadkin	Wilson	Swain [2]
Wake	Yadkin		Yadkin	Vance
Wayne				Wake
Wilkes				Wayne
Wilson				Wilkes.
				Wilson
				Yadkin [1]

[1] Included in 1 district of 3 counties.
[2] Included in 1 district of 3 counties.

Table 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

OHIO

1930	1931	1932	1933	1934
Allen	Allen	Allen	Allen	Allen
Ashtabula	Ashtabula	Ashtabula	Belmont	Athens
Belmont	Belmont	Belmont	Butler	Butler
Butler	Butler	Butler	Clinton	Clinton
Clinton	Clinton	Clinton	Coshocton	Coshocton
Columbiana	Columbiana	Columbiana	Crawford	Crawford
Coshocton	Coshocton	Coshocton	Cuyahoga	Cuyahoga
Crawford	Crawford	Crawford	Darke	Darke
Cuyahoga	Cuyahoga	Cuyahoga	Delaware	Delaware
Darke	Darke	Darke	Erie	Erie
Delaware	Delaware	Delaware	Fayette	Fayette
Erie	Erie	Erie	Hamilton	Hamilton
Fayette	Fayette	Fayette	Hancock	Hancock
Franklin	Franklin	Franklin	Hocking	Hocking
Hamilton	Guernsey	Hamilton	Huron	Huron
Hancock	Hamilton	Hancock	Jefferson	Jefferson
Hocking	Hancock	Hocking	Lorain	Lorain
Huron	Hocking	Huron	Lucas	Lucas
Jackson	Huron	Jackson	Mahoning	Mahoning
Jefferson	Jackson	Jefferson	Marion	Marion
Lorain	Jefferson	Lorain	Medina	Medina
Lucas	Lorain	Lucas	Meigs	Meigs
Mahoning	Lucas	Mahoning	Mercer	Mercer
Marion	Mahoning	Marion	Miami	Miami
Meigs	Marion	Medina	Montgomery	Montgomery
Mercer	Medina	Meigs	Perry	Perry
Miami	Meigs	Mercer	Pickaway	Pickaway
Montgomery	Mercer	Miami	Preble	Preble
Morrow	Miami	Montgomery	Richland	Richland
Muskingum	Montgomery	Morrow	Ross	Ross
Perry	Morrow	Perry	Scioto	Seneca
Pickaway	Perry	Pickaway	Seneca	Shelby
Preble	Pickaway	Preble	Shelby	Stark
Richland	Preble	Richland	Stark	Summit
Ross	Richland	Ross	Summit	Trumbull
Sandusky	Ross	Scioto	Trumbull	Tuscarawas
Scioto	Scioto	Seneca	Tuscarawas	Washington
Seneca	Seneca	Shelby	Washington	Wayne
Shelby	Shelby	Stark	Wayne	Wood
Stark	Stark	Summit	Wood	
Summit	Summit	Trumbull		
Trumbull	Trumbull	Tuscarawas		
Tuscarawas	Tuscarawas	Washington		
Washington	Washington	Wayne		
Wayne	Wayne	Wood		
Wood	Wood			

OKLAHOMA

1930	1931	1932	1933	1934
Carter	Carter			Le Flore
Le Flore	Le Flore			
McCurtain	McCurtain			
Muskogee	Muskogee			
Okmulgee	Okmulgee			
Ottawa	Ottawa			
Pittsburg	Pittsburg			
Pottawatomie	Pottawatomie			
Seminole	Seminole			

OREGON

1930	1931	1932	1933	1934
Clackamas	Clackamas	Clackamas	Clackamas	Clackamas
Coos	Coos	Coos	Jackson	Douglas
Douglas	Douglas	Douglas	Klamath	Jackson
Jackson	Jackson	Jackson	Lane	Klamath
Klamath	Klamath	Klamath	Marion	Lane
Lane	Lane	Lane	Multnomah	Marion
Marion	Marion	Marion		Multnomah
Multnomah	Multnomah			

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

PENNSYLVANIA

1930	1931	1932	1933	1934
Allegheny	Allegheny	Allegheny	Allegheny	
Bucks	Bucks	Bucks	Bucks	
Luzerne	Luzerne	Luzerne	Luzerne	

SOUTH CAROLINA

1930	1931	1932	1933	1934
Aiken	Aiken	Aiken	Aiken	Aiken
Anderson	Anderson	Anderson	Anderson	Anderson
Beaufort	Beaufort	Beaufort	Beaufort	Beaufort
Berkeley	Berkeley	Berkeley	Berkeley	Berkeley
Charleston	Charleston	Charleston	Charleston	Charleston
Cherokee	Cherokee	Cherokee	Cherokee	Cherokee
Darlington	Darlington	Darlington	Darlington	Darlington
Dillon	Dillon	Dillon	Dillon [1]	Dillon [1]
Dorchester	Dorchester	Dorchester	Dorchester	Dorchester
Fairfield	Fairfield	Fairfield	Fairfield	Fairfield
Florence	Florence	Florence	Florence	Florence
Georgetown	Georgetown	Georgetown	Georgetown	Georgetown
Greenville	Greenville	Greenville	Greenville	Greenville
Greenwood	Greenwood	Greenwood	Greenwood	Greenwood
Horry	Horry	Horry	Horry	Horry
Kershaw	Kershaw	Kershaw	Kershaw	Kershaw
Lexington	Lexington	Lexington	Marion [1]	Marion [1]
Marion	Marion	Marion	Newberry	Newberry
Newberry	Newberry	Newberry	Oconee	Oconee
Oconee	Oconee	Oconee	Orangeburg	Orangeburg
Orangeburg	Orangeburg	Orangeburg	Pickens	Pickens
Richland	Pickens	Pickens	Richland	Richland
Spartanburg	Richland	Richland	Spartanburg	Spartanburg
	Spartanburg	Spartanburg		

[1] Included in 1 district of 2 counties.

SOUTH DAKOTA

1930	1931	1932	1933	1934
Pennington	Pennington	Pennington	Pennington	

TENNESSEE

1930	1931	1932	1933	1934
Bledsoe	Bledsoe [2]	Bledsoe [2]	Bledsoe	Anderson [5]
Blount	Blount	Bradley	Bradley	Bledsoe [5]
Bradley	Bradley	Carter	Davidson	Blount
Carter	Carter	Clay [3]	Dyer	Bradley
Clay	Clay [3]	Davidson [3]	Fentress [4]	Campbell [5]
Davidson	Cumberland	Dyer	Gibson	Carter [5]
Dyer	Davidson [3]	Fentress [3]	Giles	Davidson
Fentress	Dyer	Gibson	Greene	Dyer
Gibson	Fentress [3]	Giles	Grundy [4]	Fentress [5]
Giles	Gibson	Greene	Hamilton	Gibson
Greene	Giles	Grundy [2]	Hardeman	Giles
Grundy	Greene	Hamilton	Humphreys	Greene
Hamilton	Grundy [2]	Hardeman	Jackson [4]	Grundy
Hardeman	Hamilton	Humphreys	Knox	Hamilton
Humphreys	Hardeman	Jackson [3]	Lake	Hardeman
Jackson	Humphreys	Knox	Lauderdale	Humphreys
Knox	Jackson [3]	Lake	Lincoln	Jackson [5]
Lake	Knox	Lauderdale	Maury	Knox
Lauderdale	Lake	Lewis	Meigs [4]	Lake
Lewis	Lauderdale	Lincoln	Montgomery	Lauderdale
Lincoln	Lewis	Maury	Obion	Lincoln
Maury	Lincoln	Meigs [3]	Rhea [4]	Maury
Meigs	Maury	Monroe	Roane	Meigs [5]
Monroe	Meigs [3]	Montgomery	Rutherford	Montgomery
Montgomery	Monroe	Obion	Sequatchie [4]	Obion
Obion	Montgomery	Oberton [3]	Sevier	Rhea [5]
Overton	Obion	Pickett [3]	Shelby	Roane
Pickett	Overton [3]	Rhea [2]	Sullivan	Rutherford
Rhea	Pickett [3]	Roane	Sumner	Sequatchie [5]
Roane	Rhea [2]	Rutherford	Tipton	Sevier

[2] Included in 1 district of 3 counties.
[3] Included in 4 districts of 2 counties each.
[4] Included in 3 districts of 2 counties each.
[5] Included in 5 districts of 2 counties each.

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

TENNESSEE—Continued

1930	1931	1932	1933	1934
Rutherford	Roane	Sequatchie [3]	Washington	Shelby
Sequatchie	Rutherford	Sevier	Weakley	Sullivan
Sevier	Sequatchie [3]	Shelby	Williamson	Sumner
Shelby	Sevier	Sullivan	Wilson	Tipton
Sullivan	Shelby	Sumner		Unicoi [5]
Sumner	Sullivan	Tipton		Washington
Tipton	Sumner	Unicoi		Weakley
Unicoi	Tipton	Washington		Williamson
Washington	Unicoi	Weakley		Wilson
Weakley	Washington	Williamson		
Williamson	Weakley	Wilson		
Wilson	Williamson			
	Wilson			

[3] Included in 1 district of 3 counties.
[5] Included in 5 districts of 2 counties each.

TEXAS

Cameron	Cameron [6]	Cameron	Dallas	Dallas
Hidalgo	Cass	Gregg	El Paso	El Paso
Jefferson	Hidalgo [6]	Hidalgo	Gregg	Gregg
McLennan	Jefferson	McLennan	Hidalgo	Hidalgo
Nolan	McLennan	Nolan	McLennan	Nolan
Potter	Nolan	Potter	Nolan	Potter
Tarrant	Potter	Starr	Potter	Tarrant
	Starr [6]	Tarrant	Tarrant	
	Willacy [6]			

[6] Included in 1 district of 4 counties.

UTAH

Davis	Davis	Davis	Davis	Davis
Utah	Utah	Utah	Utah	Utah

VIRGINIA

Accomac	Accomac [2]	Accomac [2]	Albemarle	Albemarle
Albemarle	Albemarle	Albemarle	Arlington	Arlington
Amelia [1]	Amelia [1]	Amelia [1]	Augusta	Augusta
Appomattox [1]	Appomattox [1]	Appomattox [1]	Brunswick [3]	Brunswick [3]
Arlington	Arlington	Arlington	Fairfax	Fairfax
Augusta	Augusta	Augusta	Greensville [3]	Greensville [3]
Brunswick	Brunswick [2]	Brunswick [2]	Halifax	Halifax
Buckingham [1]	Buckingham [1]	Buckingham [1]	Henrico	Henrico
Charlotte [1]	Charlotte [1]	Charlotte [1]	Isle of Wight [3]	Isle of Wight [3]
Cumberland [1]	Cumberland [1]	Cumberland [1]	Nansemond [3]	Nansemond [3]
Fairfax	Fairfax	Fairfax	Norfolk [3]	Norfolk [3]
Greensville	Greensville [2]	Greensville [2]	Pittsylvania	Nottoway [3]
Halifax	Halifax	Halifax	Prince Edward	Pittsylvania
Henrico	Henrico	Henrico	Princess Anne [3]	Prince Edward [3]
Isle of Wight	Isle of Wight [2]	Isle of Wight [2]	Rockbridge	Princess Anne [3]
Lunenburg [1]	Lunenburg [1]	Lunenburg [1]	Southampton	Rockbridge
Nansemond	Nansemond [2]	Nansemond [2]		Southampton
Norfolk	Norfolk [2]	Norfolk [2]		
Northampton	Northampton [2]	Nottoway [1]		
Nottoway [1]	Nottoway [1]	Pittsylvania		
Powhatan [1]	Pittsylvania	Powhatan [1]		
Prince Edward [1]	Powhatan [1]	Prince Edward [1]		
Princess Anne	Prince Edward [1]	Princess Anne [2]		
Rockbridge	Princess Anne [2]	Rockbridge		
Southampton	Rockbridge	Southampton		
Wise	Southampton			
	Wise			

[1] Included in 1 district of 9 counties.
[2] Included in 4 districts of 2 counties each.
[3] Included in 3 districts of 2 counties each.

TABLE 1.—*Counties, townships, or districts in the United States in which rural sections were provided with health service under whole-time health officers each year from 1930 to 1934, as of Dec. 31*—Continued

WASHINGTON

1930	1931	1932	1933	1934
Chelan	Chelan	Chelan	Chelan	Chelan
Clark	Clark	Clark	Clark	Clark
King	King	King	King	King
Snohomish	Snohomish	Snohomish	Snohomish	Snohomish
Spokane	Spokane	Spokane	Spokane	Spokane
Walla Walla	Walla Walla	Walla Walla	Walla Walla	Walla Walla
Whitman	Whitman	Whitman	Whitman	Whitman
Yakima	Yakima	Yakima	Yakima	Yakima

WEST VIRGINIA

1930	1931	1932	1933	1934
Berkeley	Berkeley	Berkeley	Berkeley	Berkeley
Boone	Boone	Boone	Boone	Boone
Brooke	Brooke	Brooke	Fayette	Fayette
Fayette	Doddridge[4]	Fayette	Hancock	Hancock
Gilmer	Fayette	Hancock	Harrison	Harrison
Hancock	Hancock	Harrison	Kanawha	Kanawha
Harrison	Harrison	Kanawha	Logan	Logan
Kanawha	Kanawha	Logan	Marshall	Marshall
Logan	Logan	Marion	Monongalia	Monongalia
Marion	Marion	Marshall	Ohio	Ohio
Marshall	Marshall	Monongalia	Preston	Preston
Monongalia	Monongalia	Ohio	Raleigh	Raleigh
Ohio	Ohio	Preston	Wood	Wood
Preston	Pleasants[4]	Raleigh		
Raleigh	Preston	Wood		
Wood	Raleigh			
	Ritchie[4]			
	Tyler[4]			
	Wetzel[4]			
	Wood			

[4] Included in 1 district of 5 counties.

Table 2, a résumé of table 1, indicates the number of whole-time county, township, or district health units in each of 38 States during the years 1930–34, inclusive. There is also shown the increase or decrease from year to year of whole-time units in each of these States. It will be noted that there was a gain of 10 whole-time units in 1934 over 1933.

TABLE 2.—*Résumé of table 1, showing the total number of counties, townships, or districts having whole-time health service for each year from 1930 to 1934 (as of Dec. 31), with increase or decrease in the number of such units during these years*

	Number of counties					Increase or decrease in—			
	Jan. 1, 1931	Jan. 1, 1932	Dec. 31, 1932	Dec. 31, 1933	Dec. 31, 1934	1931	1932	1933	1934
Alabama	54	54	54	46	50	-------	-------	−8	+4
Arizona	6	5	4	4	4	−1	−1	-------	-------
Arkansas	24	30	27	21	19	+6	−3	−6	−2
California	13	14	14	13	15	+1	-------	−1	+2
Colorado	1	1	-------	-------	-------	-------	−1	-------	-------
Connecticut	1	1	2	2	2	-------	+1	-------	-------
Delaware	3	3	3	3	3	-------	-------	-------	-------
Florida	3	2	3	2	2	−1	+1	−1	-------
Georgia	30	35	31	30	30	+5	−4	−1	-------
Idaho	1	1	1	-------	-------	-------	-------	−1	-------
Illinois	2	1	1	1	1	−1	-------	-------	-------
Iowa	2	3	3	1	1	+1	-------	−2	-------

TABLE 2.—*Résumé of table 1, showing the total number of counties, townships, or districts having whole-time health service for each year from 1930 to 1934 (as of Dec. 31), with increase or decrease in the number of such units during these years*—Continued

	Number of counties					Increase or decrease in—			
	Jan. 1, 1931	Jan. 1, 1932	Dec. 31, 1932	Dec. 31, 1933	Dec. 31, 1934	1931	1932	1933	1934
Kansas	12	10	6	4	3	−2	−4	−2	−1
Kentucky	43	81	79	73	70	+38	−2	−6	−3
Louisiana	31	32	31	31	32	+1	−1	--------	+1
Maine	4	6	5	5	5	+2	−1	--------	--------
Maryland	14	18	21	22	23	+4	+3	+1	+1
Massachusetts	1	3	3	3	3	+2	--------	--------	--------
Michigan	24	25	29	30	32	+1	+4	+1	+2
Minnesota	1	1	1	1	1	--------	--------	--------	--------
Mississippi	28	29	25	24	25	+1	−4	−1	+1
Missouri	13	11	10	9	8	−2	−1	−1	−1
Montana	4	4	4	4	4	--------	--------	--------	--------
New Mexico	8	6	6	6	6	−2	--------	--------	--------
New York	4	4	4	5	5	--------	--------	+1	--------
North Carolina	39	36	35	36	41	−3	−1	+1	+5
Ohio	46	46	45	40	38	--------	−1	−5	−2
Oklahoma	9	9	--------	--------	1	--------	−9	--------	+1
Oregon	8	8	7	6	7	--------	−1	−1	+1
Pennsylvania	3	3	3	3	--------	--------	--------	--------	−3
South Carolina	23	24	24	23	23	+1	--------	−1	--------
South Dakota	1	1	1	1	--------	--------	--------	--------	−1
Tennessee	42	43	41	34	39	+1	−2	−7	+5
Texas	7	9	8	8	7	+2	−1	--------	−1
Utah	2	2	2	2	2	--------	--------	--------	--------
Virginia	26	27	25	16	17	+1	−2	−9	+1
Washington	8	8	8	8	8	--------	--------	--------	--------
West Virginia	16	20	15	13	13	+4	−5	−2	--------
Total	557	616	581	530	540	+59	−35	−51	+10

The accompanying map shows the location of the counties, townships, or districts in the United States with health service for rural areas, under the direction of whole-time local health officers, on December 31, 1934.

From January 1, 1934, to December 31, 1934, whole-time health service was established in 24 units and was discontinued in 14—a net gain of 10. The greatest gains were in the States of Tennessee and North Carolina, in each of which whole-time health service was established in 5 counties.

Delaware and Maryland lead in the percentage of rural population under whole-time health service, all of their counties having been provided with whole-time local health organizations. The health units in Delaware have been provided by the State, whereas those in Maryland are maintained by the local governments, with or without assistance from the State health department or other sources.

Table 3 presents, by States, the percentage of rural population having health service under the direction of local whole-time health officers at the end of the calendar year 1934.

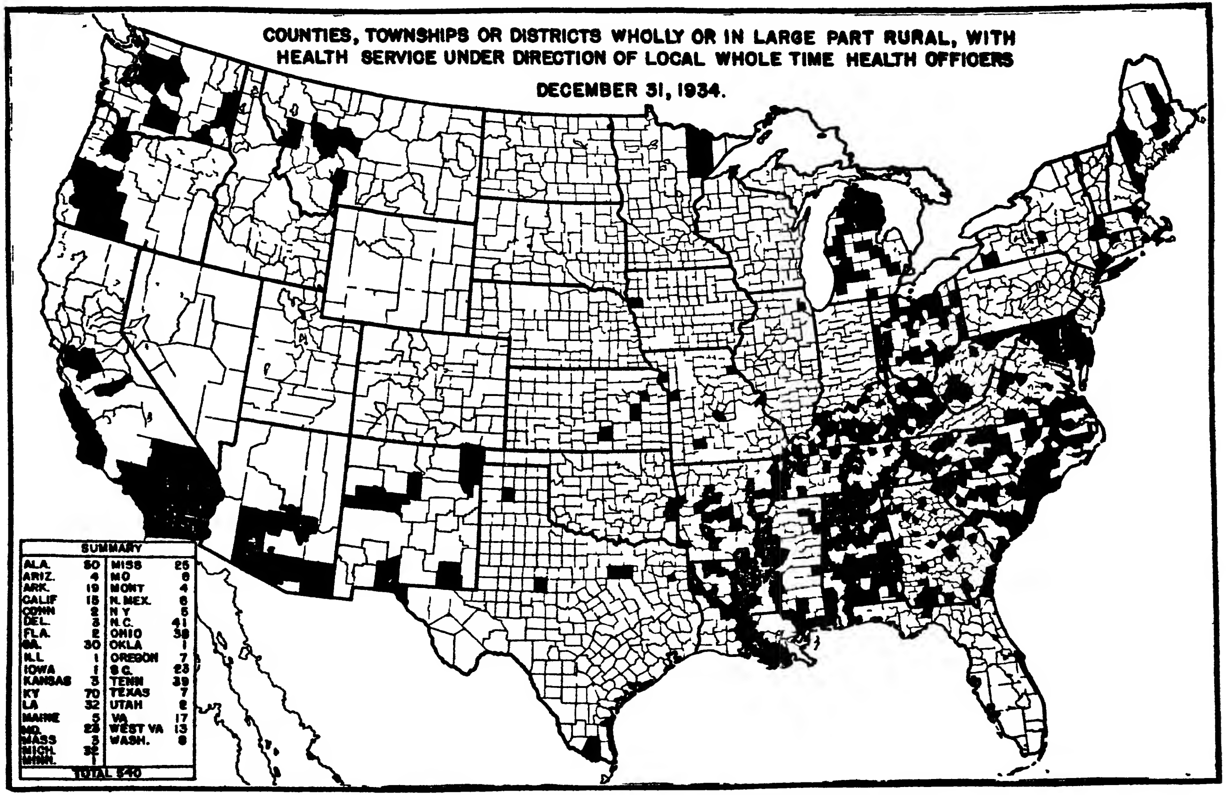

FIGURE 1.—Rural areas having whole-time health officers on December 31, 1934.

TABLE 3.—*Percentage of rural population having on Dec. 31, 1934, health service under whole-time local health officers*

State	Rural population as of Dec. 31, 1934 (estimate from 1930 census)	Rural population with local health service under direction of whole-time health officers	Percentage of rural population with local health service under direction of whole-time health officers
Alabama	1,931,224	1,543,141	79.9
Arizona	317,729	180,913	56.9
Arkansas	1,476,190	500,492	33.9
California	1,711,989	1,452,917	84.9
Colorado	529,597	0	0.0
Connecticut	489,424	52,276	10.7
Delaware	121,258	121,258	100.0
Florida	752,822	36,653	4.9
Georgia	[1] 2,013,016	251,251	12.5
Idaho	316,774	0	0.0
Illinois	[1] 1,994,927	27,105	1.4
Indiana	[1] 1,442,611	0	0.0
Iowa	[1] 1,491,647	23,200	1.6
Kansas	[1] 1,151,165	64,919	5.6
Kentucky	1,830,613	1,154,785	63.1
Louisiana	1,313,343	746,543	56.8
Maine	479,380	59,520	12.4
Maryland	692,069	692,069	100.0
Massachusetts	518,319	70,587	13.6
Michigan	1,592,799	585,603	36.8
Minnesota	[1] 1,306,337	48,313	3.7
Mississippi	1,726,798	685,701	39.7
Missouri	[1] 1,770,248	340,256	19.2
Montana	[1] 356,570	35,139	9.9
Nebraska	892,223	0	0.0
Nevada	[1] 56,594	0	0.0
New Hampshire	205,603	0	0.0
New Jersey	711,881	0	0.0
New Mexico	326,284	90,864	27.8
New York	2,191,571	323,358	14.8
North Carolina	2,495,592	1,372,794	55.0
North Dakota	571,667	0	0.0
Ohio	2,165,772	1,130,376	52.2
Oklahoma	1,614,005	49,676	3.1
Oregon	497,252	225,542	45.4
Pennsylvania	[1] 3,097,139	0	0.0
Rhode Island	69,145	0	0.0
South Carolina	[1] 1,367,685	836,254	61.1
South Dakota	574,578	0	0.0
Tennessee	[1] 1,720,018	893,232	51.9
Texas	3,567,356	181,845	5.1
Utah	245,184	30,838	12.6
Vermont	[1] 240,845	0	0.0
Virginia	1,636,829	426,736	26.1
Washington	711,745	318,932	44.8
West Virginia	1,303,971	530,735	40.7
Wisconsin	[1] 1,385,163	0	0.0
Wyoming	164,002	0	0.0
Total	55,138,953	15,083,823	27.4

[1] 1930 census; no estimate made for Dec. 31, 1934.

Of the 540 counties, townships, or districts with health service under whole-time local health officers at the end of the present calendar year, 507, or 93.9 percent, were receiving financial assistance for the support of their health service from one or more of the following agencies: The State board of health, the United States Public Health Service, the Rockefeller Foundation, the American Red Cross, the American Women's Hospital Fund, the Rosenwald Fund, the Commonwealth Fund, and the Milbank Memorial Fund.

The accompanying chart shows, by States, the number of counties, townships, or districts with health service under the direction of whole-time local health officers from 1930–34, and the percentage of the rural population of each State receiving such service at the close of the calendar year 1934. There also is shown the total number of

	STATE	WHOLE-TIME COUNTY OR LOCAL DISTRICT HEALTH UNITS					
		JAN. 1			DEC. 31		
		1931	1932	1933	1933	1934	%
1	DELAWARE	3	3	3	3	3	100 0
2	MARYLAND	14	18	21	22	23	100 0
3	CALIFORNIA	13	14	14	13	15	84.9
4	ALABAMA	54	54	54	46	50	79 9
5	KENTUCKY	43	81	79	73	70	63.1
6	SOUTH CAROLINA	23	24	24	23	23	61 1
7	ARIZONA	6	5	4	4	4	56 9
8	LOUSIANA	31	32	31	31	32	56 8
9	NORTH CAROLINA	39	36	35	36	41	55 0
10	OHIO	48	46	45	40	38	52.2
11	TENNESSEE	42	43	41	34	39	51.9
12	OREGON	6	8	7	6	7	45 4
13	WASHINGTON	8	8	8	8	8	44 8
14	WEST VIRGINIA	16	20	18	13	13	40 7
15	MISSISSIPPI	28	29	25	24	25	39 7
16	MICHIGAN	24	25	29	30	32	36 7
17	ARKANSAS	24	30	27	21	19	33 9
18	NEW MEXICO	8	6	6	6	6	27 8
19	VIRGINIA	26	27	25	16	17	26.1
20	MISSOURI	13	11	10	9	8	19 2
21	NEW YORK	4	4	4	5	5	14.8
22	MASSACHUSETTS	1	3	3	3	3	13 6
23	UTAH	2	2	2	2	2	12 6
24	GEORGIA	30	35	31	30	30	12 5
25	MAINE	4	6	5	5	5	12.4
26	CONNECTICUT	1	1	2	2	2	10.7
27	MONTANA	4	4	4	4	4	9.9
28	KANSAS	12	10	6	4	3	5.8
29	TEXAS	7	9	8	6	7	5.1
30	FLORIDA	3	2	3	2	2	4 9
31	MINNESOTA	1	1	1	1	1	3 7
32	OKLAHOMA	9	9	–	–	1	3.1
33	IOWA	2	3	3	1	1	1 6
34	ILLINOIS	2	1	1	1	1	1 4
35	PENNSYLVANIA	3	3	3	3	–	0 0
36	SOUTH DAKOTA	1	1	1	1	–	0 0
37	IDAHO	1	1	1	–	–	0.0
38	COLORADO	1	1	–	–	–	0 0
	TOTALS	557	616	581	530	540	27 4

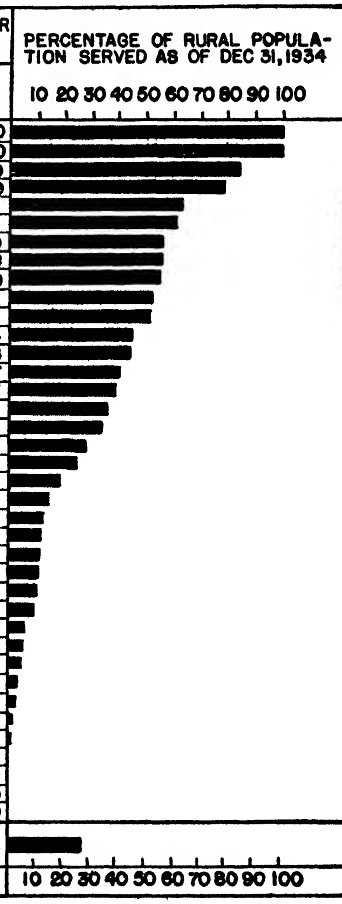

FIGURE 2.—Number of whole-time county or local health units, by States, 1931–34, and percentage of rural population served on December 31, 1934

counties, townships, or districts in the United States having whole-time local health service, together with the percentage of the rural population of the entire United States served by whole-time local health organizations.

It will be noted that 72.6 percent of our rural population is as yet not provided with the form of health organization which is believed to be adapted to rural areas.

COURT DECISION ON PUBLIC HEALTH

Ordinance requiring sewer connections and declaring privy vaults, etc., to be nuisances upheld.—(Kentucky Court of Appeals; *Nourse* v. *City of Russellville et al.*, 78 S. W. (2d) 761; decided Jan. 29, 1935.) The city of Russellville, after contracting for the construction of a sewer system, passed an ordinance premised upon the declaration that the construction of the sewer system and the abolition of privy vaults, etc., were necessary in order to protect the public health and promote the general welfare. The ordinance, among other things, required connection with the sewerage system where the premises abutted upon any street, etc., in which there was a line of the system, made unlawful the maintenance of privy vaults, etc., on premises abutting the sewer, and declared such vaults, etc., to be nuisances. The plaintiff sued to enjoin the city and its officers from enforcing the ordinance and for a declaration of rights.

The court of appeals, after reviewing pertinent statutory provisions, stated that they "clearly and expressly empower the city to abate nuisances and to build sewers and charge the cost of the latter to those who use them." "The particular questions, however," said the court, "are whether the city has the charter right or the inherent power (*a*) to declare these structures and their use to be nuisances without affording the respective owners a hearing, and (*b*) to compel attachment to the sewer system." The conclusion was reached that the ordinance was valid. In the course of the opinion it was said:

> The science of sanitation has developed and taught much in recent years. It has demonstrated that nothing contributes more to secure the preservation of public health than a sanitary system of sewerage disposal, whether it be the modern sewers or septic closets. The benefits of such system are largely lost, unless the inhabitants can be compelled to abandon the menacing structures and to connect their facilities with the system. The community is to be considered as a whole in the matter of preservation of the health of all inhabitants, for a failure by a few to conform to sanitary measures may inflict ill health and death upon many. A spark of contamination may become a conflagration of disease. So the courts pretty generally hold that a legislative body may declare privy vaults and such unsanitary facilities in thickly settled communities to be nuisances and require their abatement without challenging each one or giving the owner notice and an opportunity to show that it is not in fact a nuisance. Owners are not heard to say that these things are not injurious to health and comfort and that they only become so when not properly cared for, or that their abuse or carelessness alone make them subject to police regulation and repression, for the same might be said of the storage of gunpowder, fire traps, and many other activities and conditions recognized as per se inimical or dangerous in thickly settled communities. * * *

DEATHS DURING WEEK ENDED OCT. 12, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 12, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,548	7,348
Deaths per 1,000 population, annual basis	10.5	10.2
Deaths under 1 year of age	468	544
Deaths under 1 year of age per 1,000 estimated live births	43	51
Deaths per 1,000 population, annual basis, first 41 weeks of year	11.4	11.4
Data from industrial insurance companies:		
Policies in force	67,711,405	67,018,610
Number of death claims	11,077	9,445
Death claims per 1,000 policies in force, annual rate	8.5	7.3
Death claims per 1,000 policies, first 41 weeks of year, annual rate	9.7	9.9

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Oct. 19, 1935, and Oct. 20, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 19, 1935, and Oct. 20, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934
New England States:								
Maine	1	1			31	1	0	0
New Hampshire		1				1	0	0
Vermont					30	1	0	0
Massachusetts	10	26			38	27	1	1
Rhode Island		2			8	2	1	0
Connecticut	5	1	2	1	30	46	0	0
Middle Atlantic States:								
New York	80	24	[1] 10	[1] 3	144	146	12	1
New Jersey	13	26	9	37	15	19	0	1
Pennsylvania	54	68			45	338	5	3
East North Central States:								
Ohio	65	94	20	4	31	61	7	4
Indiana	89	87	17	18	5	41	1	2
Illinois	66	61	9	11	15	70	6	8
Michigan	13	8	4		36	35	1	2
Wisconsin	5	11	30	12	40	103	1	1
West North Central States:								
Minnesota	17	6	1	1	8	78	0	0
Iowa	8	16				15	0	0
Missouri	64	88	56	24	9	53	4	3
North Dakota	4	5			9	10	1	1
South Dakota	11	3	1		8	7	0	1
Nebraska	15	14			3	22	0	0
Kansas	23	18			2	35	2	1
South Atlantic States:								
Delaware	1	2			7	2	0	0
Maryland [3]	18	16	10	4	10	10	4	0
District of Columbia	6	7	1			2	2	0
Virginia	66	114			9	44	4	0
West Virginia	53	91	15	18	5	37	1	2
North Carolina [3]	119	104	8	4	3	10	4	0
South Carolina [3]	26	25	169	172	3	3	1	0
Georgia [3]	33	81					1	0
Florida [3]	18	13	2	1	9	1	0	0

See footnotes at end of table.

23183°—35——3

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 19, 1935, and Oct. 20, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934
East South Central States:								
Kentucky	59	82	10	12	61	35	1	2
Tennessee	88	91	4	19		15	1	1
Alabama [3]	43	78	25	11	3	25	1	0
Mississippi [2]	25	30					0	3
West South Central States:								
Arkansas	17	19	10	5	1		0	0
Louisiana [3]	26	32	8	5	3	12	3	0
Oklahoma [4]	9	18	37	11	2	1	0	3
Texas [3]	130	47	130	116	3	11	1	0
Mountain States:								
Montana	1			1	27	47	0	0
Idaho		1	1	1	1	1	0	0
Wyoming	1	1			20		3	0
Colorado	13	11			3	18	0	2
New Mexico	14	3		2	13	60	0	0
Arizona	1	4	20	3		7	0	0
Utah [2]					1	5	0	0
Pacific States:								
Washington	2				53	162	0	1
Oregon	1	5	15	20	162	2	0	0
California	65	32	30	14	116	144	3	3
Total	1,328	1,467	654	530	1,012	1,774	72	46
First 42 weeks of year	26,026	28,206	108,230	53,443	701,383	676,125	4,727	1,899

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934
New England States:								
Maine	8	1	14	29	0	0	2	2
New Hampshire	2	0	3		0	0	0	1
Vermont	2	0	7	8	0	0	0	0
Massachusetts	47	1	149	136	0	0	4	4
Rhode Island	9	0	5	14	0	0	0	0
Connecticut	17	0	24	24	0	0	5	1
Middle Atlantic States:								
New York	84	6	321	206	0	0	20	25
New Jersey	26	1	75	96	0	0	3	10
Pennsylvania	13	5	297	308	0	0	42	18
East North Central States:								
Ohio	3	18	303	388	0	1	24	19
Indiana	3	3	125	145	1	1	7	6
Illinois	7	10	309	336	2	1	17	43
Michigan	16	13	135	184	0	0	10	22
Wisconsin	1	16	383	399	9	2	7	3
West North Central States:								
Minnesota	3	4	176	53	0	73	4	4
Iowa	7	1	93	65	2	0	7	13
Missouri	1	0	132	76	6	0	11	24
North Dakota	1	1	32	16	0	0	1	0
South Dakota	0	0	34	15	2	0	1	0
Nebraska	0	1	57	18	6	2	1	1
Kansas	0	1	80	52	0	1	8	5
South Atlantic States:								
Delaware	0	0	5	7	0	0	6	1
Maryland [3]	3	1	63	93	0	0	18	11
District of Columbia	1	0	14	31	0	0	2	0
Virginia	7	2	60	103	0	0	6	33
West Virginia	1	3	137	121	0	0	12	26
North Carolina [3]	8	1	95	132	0	1	5	11
South Carolina [3]	1	1	17	6	0	0	6	11
Georgia [3]	0	2	25	22	0	0	8	29
Florida [3]	0	0	3	1	0	0	2	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 19, 1935, and Oct. 20, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934	Week ended Oct. 19, 1935	Week ended Oct. 20, 1934
East South Central States:								
Kentucky	13	4	104	62	0	3	19	25
Tennessee	0	3	83	78	0	0	23	12
Alabama [3]	1	1	20	35	0	0	4	11
Mississippi [2]	1	0	28	28	0	0	8	3
West South Central States:								
Arkansas	2	0	12	5	0	0	5	7
Louisiana [3]	3	1	10	16	0	0	13	10
Oklahoma [4]	0	0	11	10	0	0	11	22
Texas [3]	3	13	62	38	5	2	38	31
Mountain States:								
Montana	1	6	77	9	2	1	3	4
Idaho	0	2	21	3	0	1	0	4
Wyoming	0	0	32	10	0	0	0	0
Colorado	0	1	89	71	0	0	3	5
New Mexico	0	0	16	14	0	0	35	18
Arizona	1	2	8	15	0	0	2	9
Utah [2]	1	1	56	29	0	0	0	2
Pacific States:								
Washington	2	25	51	41	4	23	4	7
Oregon	5	4	50	48	0	0	2	0
California	20	38	154	178	2	0	12	14
Total	324	193	4,147	3,774	41	112	422	508
First 42 weeks of year	9,616	6,487	198,862	166,278	5,606	4,073	14,931	17,531

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Typhus fever, week ended Oct. 19, 1935, 39 cases, as follows: North Carolina, 2; South Carolina, 1; Georgia, 10; Florida, 1; Alabama, 11; Louisiana, 1; Texas, 13.
[4] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
September 1935										
Alabama	5	178	80	1,617	20	36	4	53	0	74
Idaho		3	14		16		0	76	1	21
Illinois	14	193	29	47	73		67	791	1	133
Maryland	1	36	11	8	18		35	104	0	78
Michigan	8	61	8	17	89		225	265	0	73
Minnesota	5	33	4	3	142		32	257	1	36
Missouri	5	184	205	357	90		10	248	0	90
New Jersey	9	43	18	75	43		223	124	0	36
North Carolina	4	211	17		33	48	50	220	2	99
North Dakota	1	13	1		19		3	44	6	8
Ohio	9	142	79	17	66		21	588	2	161
South Dakota	1	5	5		1		2	51	12	8
West Virginia	4	191	108	1	19		11	262	0	84

September 1935

Anthrax:	Cases
New Jersey	1
South Dakota	1
Chicken pox:	
Alabama	7
Idaho	5
Illinois	118
Maryland	22
Michigan	122
Minnesota	75
Missouri	29
New Jersey	110
North Carolina	17
North Dakota	11
Ohio	159
South Dakota	24
West Virginia	19
Conjunctivitis:	
Maryland	1
Dengue:	
Alabama	1
Diarrhea:	
Maryland	76
Ohio (and enteritis) (under 2 years)	26
Dysentery:	
Illinois (amoebic)	10
Illinois (bacillary)	15
Illinois (amoebic carriers)	22
Maryland	28
Michigan (amoebic)	1
Michigan (bacillary)	4
Minnesota (bacillary)	3
Missouri	11
New Jersey (bacillary)	2
Ohio (amoebic)	2
Ohio (bacillary)	3
Epidemic encephalitis:	
Alabama	5
Illinois	13
Maryland	2
Michigan	1
Minnesota	1
Missouri	9
New Jersey	4
North Dakota	1
Ohio	1
Food poisoning:	
Ohio	13
German measles:	
Alabama	2
Illinois	26
Maryland	10
Michigan	31
New Jersey	26
North Carolina	9
Ohio	16

September 1935—Continued

Impetigo contagiosa:	Cases
Illinois	6
Maryland	42
South Dakota	2
Lead poisoning:	
Michigan	3
Ohio	4
Mumps:	
Alabama	19
Idaho	4
Illinois	145
Maryland	22
Michigan	57
Missouri	55
New Jersey	95
North Dakota	122
Ohio	219
South Dakota	48
West Virginia	8
Ophthalmia neonatorum:	
Alabama	4
Illinois	8
Maryland	4
Missouri	1
North Carolina	1
Ohio	81
Paratyphoid fever:	
Illinois	5
Michigan	2
New Jersey	3
North Carolina	4
Ohio	4
Puerperal septicemia:	
Illinois	3
Ohio	2
Rabies in animals:	
Illinois	18
Michigan	1
Missouri	3
New Jersey	8
Rabies in man:	
Alabama	1
West Virginia	1
Rocky Mountain spotted fever:	
Idaho	2
Maryland	1
North Carolina	5
Septic sore throat:	
Idaho	5
Illinois	2
Maryland	9
Michigan	15
Minnesota	4
Missouri	29
North Carolina	13
Ohio	81
West Virginia	1

September 1935—Continued

Tetanus:	Cases
Alabama	7
Illinois	3
Maryland	2
Michigan	2
Minnesota	2
Missouri	2
New Jersey	2
Ohio	3
Trachoma:	
Illinois	39
Missouri	130
New Jersey	2
North Carolina	2
Ohio	4
South Dakota	7
Trichinosis:	
Maryland	2
Ohio	1
Tularaemia:	
Illinois	1
Minnesota	5
North Carolina	3
Typhus fever:	
Alabama	27
Illinois	1
Maryland	3
New Jersey	1
North Carolina	7
West Virginia	1
Undulant fever:	
Alabama	6
Illinois	16
Maryland	1
Michigan	7
Minnesota	6
Missouri	7
New Jersey	6
North Carolina	8
Ohio	5
West Virginia	1
Vincent's infection:	
Maryland	13
Michigan	17
North Dakota	7
West Virginia	6
Whooping cough:	
Alabama	51
Idaho	1
Illinois	769
Maryland	91
Michigan	896
Minnesota	83
Missouri	77
New Jersey	481
North Carolina	251
North Dakota	20
Ohio	480
South Dakota	50
West Virginia	63

WEEKLY REPORT FROM CITIES

City reports for week ended Oct. 12, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	0	1	5	0	1	0	4	23
New Hampshire:											
Concord	2	------	0	0	1	1	0	3	0	0	11
Nashua	0	------	------	0	------	0	0	------	0	0	------
Vermont:											
Barre	0	------	0	0	0	2	0	0	0	0	------
Burlington	0	------	0	0	0	1	0	0	0	0	8
Rutland	0	------	0	0	1	0	0	0	0	1	5
Massachusetts:											
Boston	1	------	0	3	18	12	0	7	2	5	187
Fall River	0	------	0	0	0	1	0	0	0	1	27
Springfield	0	------	0	0	1	2	0	1	1	5	34
Worcester	0	------	0	0	1	15	0	0	0	0	37
Rhode Island:											
Pawtucket	------	------	------	------	------	------	------	------	------	------	------
Providence	0	------	0	1	3	2	0	4	0	[1] 16	56
Connecticut:											
Bridgeport	1	------	0	0	[1] 0	0	0	1	0	0	26
Hartford	0	------	0	1	0	2	0	2	0	2	44
New Haven	0	------	0	0	3	0	0	0	0	2	49
New York:											
Buffalo	0	------	0	1	7	22	0	8	1	0	110
New York	16	6	3	15	105	43	0	83	4	92	1,312
Rochester	0	------	0	1	4	1	0	0	1	7	56
Syracuse	0	------	0	3	2	0	0	1	0	5	46
New Jersey:											
Camden	1	------	0	0	5	1	0	0	3	0	21
Newark	0	------	0	1	4	13	0	6	0	29	74
Trenton	0	------	0	0	0	2	0	3	0	2	37
Pennsylvania:											
Philadelphia	3	1	0	9	19	45	0	22	5	44	446
Pittsburgh	3	------	0	2	16	22	0	11	0	15	153
Reading	0	------	1	2	1	1	0	0	0	0	23
Scranton	0	------	------	0	------	1	0	------	0	0	------
Ohio:											
Cincinnati	15	------	0	1	3	14	0	6	0	3	124
Cleveland	3	17	1	0	10	13	0	17	3	18	179
Columbus	6	1	1	2	2	7	0	3	2	2	68
Toledo	0	------	0	0	2	3	0	2	2	4	70
Indiana:											
Anderson	1	------	0	0	0	2	0	0	0	1	6
Fort Wayne	8	------	0	0	1	6	0	1	1	0	18
Indianapolis	6	------	0	1	6	17	0	4	1	13	102
Muncie	0	------	0	0	2	2	0	1	0	0	9
South Bend	0	------	0	1	1	1	0	0	0	1	20
Terre Haute	0	------	0	0	0	2	0	0	0	0	28
Illinois:											
Alton	10	------	0	1	0	5	0	0	0	0	12
Chicago	6	5	3	7	22	92	0	42	0	58	662
Elgin	0	------	0	0	1	7	0	0	0	0	9
Moline	0	------	0	0	1	0	0	0	0	0	7
Springfield	0	------	0	1	0	3	0	0	0	2	18
Michigan:											
Detroit	10	3	0	7	15	27	0	10	1	98	234
Flint	0	------	0	0	0	6	0	0	0	0	28
Grand Rapids	0	------	1	2	2	8	0	1	0	2	25
Wisconsin:											
Kenosha	0	------	0	1	1	21	0	0	0	4	5
Milwaukee	0	2	1	4	5	29	0	5	0	40	95
Racine	0	------	0	0	0	12	0	0	0	4	17
Superior	1	------	0	0	0	3	0	0	0	0	8
Minnesota:											
Duluth	0	------	0	0	2	2	0	2	0	1	19
Minneapolis	8	------	0	3	5	36	0	0	1	12	82
St. Paul	0	------	0	0	6	14	0	2	0	9	62
Iowa:											
Cedar Rapids	0	------	0	0	0	3	0	0	0	2	------
Davenport	0	------	0	0	0	2	0	0	0	0	------
Des Moines	3	------	------	0	------	3	0	------	1	1	31
Sioux City	0	------	------	0	------	11	0	------	0	0	------
Waterloo	3	------	------	0	------	3	0	------	0	0	------

[1] Including delayed reports.

City reports for week ended Oct. 12, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Missouri:											
St. Joseph	4	------	0	0	3	0	0	3	0	1	32
St. Louis	11	------	------	1	6	15	0	13	0	2	189
North Dakota:											
Fargo	1	------	0	0	0	1	0	0	0	3	7
Grand Forks	0	------	------	0	------	0	0	------	0	0	------
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	0	------
Nebraska:											
Omaha	4	------	0	1	8	9	0	1	0	1	53
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	1	5
Topeka	0	------	0	1	0	7	0	0	0	1	7
Wichita	0	------	0	0	2	1	0	0	0	5	38
Delaware:											
Wilmington	0	------	0	0	4	2	0	0	0	2	17
Maryland:											
Baltimore	3	1	1	0	16	19	0	12	2	15	200
Cumberland	1	------	0	0	1	3	0	0	0	0	16
Frederick	0	------	0	0	0	1	0	0	0	0	2
Dist. of Columbia:											
Washington	20	------	0	1	10	11	0	7	3	1	165
Virginia:											
Lynchburg	3	------	0	0	2	1	0	0	0	6	11
Norfolk	0	------	0	0	5	1	0	6	0	4	30
Richmond	0	------	1	0	5	1	0	4	0	0	[illegible]
Roanoke	3	------	0	0	0	3	0	1	1	0	12
West Virginia:											
Charleston	3	------	0	0	1	3	0	0	0	0	10
Huntington	2	------	------	0	------	11	0	------	0	0	------
Wheeling	1	------	0	0	1	3	0	0	2	0	22
North Carolina:											
Gastonia	1	------	0	0	1	2	0	0	0	0	2
Raleigh	1	------	0	0	0	0	0	2	0	0	15
Wilmington	0	------	0	0	0	0	0	1	0	3	12
Winston-Salem	0	------	0	0	2	6	0	0	1	0	15
South Carolina:											
Charleston	0	11	0	0	1	0	0	0	0	0	12
Columbia	0	------	0	0	0	0	0	0	0	0	6
Florence	1	------	0	0	1	0	0	0	0	0	11
Greenville	0	------	0	0	3	0	1	0	0	0	13
Georgia:											
Atlanta	4	4	0	0	5	9	0	5	0	3	74
Brunswick	0	------	0	0	0	0	0	0	0	0	2
Savannah	9	7	0	0	3	0	0	2	2	2	35
Florida:											
Miami	0	2	------	0	0	1	0	4	0	0	20
Tampa	1	------	0	0	3	1	0	2	0	0	22
Kentucky:											
Ashland	1	------	------	0	------	3	0	------	0	0	------
Covington	3	------	0	0	0	3	0	0	0	1	19
Lexington	6	------	0	0	2	0	0	0	0	0	21
Louisville	6	------	0	1	2	8	0	1	2	3	78
Tennessee:											
Knoxville	8	------	0	0	0	1	0	2	2	0	27
Memphis	3	------	0	0	5	8	0	2	2	4	82
Nashville	0	------	1	0	6	2	0	3	0	1	50
Alabama:											
Birmingham	1	1	1	0	5	5	0	5	0	0	72
Mobile	------	------	------	------	------	------	------	------	------	------	------
Montgomery	1	------	------	0	------	1	0	------	0	2	------
Arkansas:											
Fort Smith	0	------	------	0	------	4	0	------	0	0	------
Little Rock	1	------	0	0	2	3	0	3	0	0	7
Louisiana:											
Lake Charles	2	------	0	0	1	0	0	0	0	0	5
New Orleans	4	------	2	3	9	4	0	10	5	0	147
Shreveport	3	------	0	0	6	0	0	1	1	0	45
Oklahoma:											
Oklahoma City	1	6	1	0	1	4	0	0	1	0	[illegible]
Texas:											
Dallas	5	------	0	0	6	13	0	1	0	2	52
Fort Worth	4	------	0	0	6	4	0	0	2	0	28
Galveston	2	------	0	0	1	0	0	1	0	0	17
Houston	5	------	0	1	4	1	0	3	2	0	54
San Antonio	1	------	2	0	4	0	0	2	0	0	46

City reports for week ended Oct. 12, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Montana:											
Billings	1		0	1	0	0	0	0	0	1	5
Great Falls	0		0	0	0	1	0	0	0	0	6
Helena	0		0	1	1	0	0	0	0	0	3
Missoula	0		0	14	1	14	0	0	1	0	5
Idaho:											
Boise	0		0	0	1	2	0	0	0	0	10
Colorado:											
Colorado Springs	0		0	2	1	5	0	0	0	14	15
Denver	11		0	1	5	14	0	5	5	1	63
Pueblo	0		0	0	0	10	0	0	1	0	4
New Mexico:											
Albuquerque	5		0	0	1	3	0	5	1	0	12
Utah:											
Salt Lake City	0		0	2	4	30	0	1	0	12	27
Nevada:											
Reno	0		0	0	1	0	0	0	0	0	1
Washington:											
Seattle	0		2	2	2	10	0	4	0	2	71
Spokane	0		0	0	2	3	1	0	0	1	27
Tacoma	0		0	1	3	4	0	0	0	0	21
Oregon:											
Portland	0		0	3	0	11	0	3	1	0	66
Salem	0			0		0	0		0	0	
California:											
Los Angeles	16	11	0	20	9	27	0	15	3	10	332
Sacramento	1		0	3	3	3	0	2	1	0	25
San Francisco	1	1	1	27	5	9	0	7	1	14	141

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Maine:			
Portland	0	0	1
New Hampshire:			
Concord	0	0	1
Vermont:			
Barre	0	0	1
Massachusetts:			
Boston	1	1	36
Fall River	0	0	1
Worcester	0	0	1
Rhode Island:			
Providence	0	0	5
Connecticut:			
Bridgeport	0	0	3
Hartford	1	0	1
New Haven	0	0	1
New York:			
Buffalo	1	0	0
New York	6	3	34
Syracuse	0	0	5
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	2	2	4
Ohio:			
Cincinnati	2	1	0
Columbus	3	0	0
Indiana:			
Muncie	1	1	0
Illinois:			
Chicago	4	1	4
Michigan:			
Detroit	1	0	8
Flint	0	0	1
Minnesota:			
Minneapolis	2	0	0

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Iowa:			
Waterloo	0	0	1
South Dakota:			
Aberdeen	0	0	2
Kansas:			
Wichita	1	1	0
Kentucky:			
Louisville	0	0	2
Tennessee:			
Nashville	2	0	0
Delaware:			
Wilmington	1	0	0
Maryland:			
Baltimore	5	1	4
District of Columbia:			
Washington	3	2	4
Virginia:			
Lynchburg	0	0	1
Norfolk	0	1	0
Richmond	0	0	1
West Virginia:			
Wheeling	1	0	0
Georgia:			
Atlanta	3	2	0
Louisiana:			
Shreveport	0	2	0
Texas:			
San Antonio	0	0	1
Utah:			
Salt Lake City	0	0	1
Nevada:			
Reno	0	0	1
California:			
Los Angeles	1	2	3

Epidemic encephalitis.—Cases: Pittsburgh, 1; Detroit, 1; St. Joseph, 1; Sacramento, 1.

Pellagra.—Cases: Louisville, Ky., 1; Winston-Salem, 1; Charleston, S. C., 1; Atlanta, 3; Savannah, 1; New Orleans, 3; Dallas, 1; Los Angeles, 6; San Francisco, 1.

Typhus fever.—Cases: Charleston, S. C., 3; Savannah, 1; Fort Worth, 2.

FOREIGN AND INSULAR

ITALY

Communicable diseases—4 weeks ended August 18, 1935.—During the 4 weeks ended August 18, 1935, cases of certain communicable diseases were reported in Italy as follows:

	July 22-28		July 29-Aug. 4		Aug. 5-11		Aug. 12-18	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	27	24	46	38	34	26	42	34
Cerebrospinal meningitis	7	4	6	5	8	6	5	5
Chicken pox	103	70	116	74	96	63	99	60
Diphtheria and croup	300	168	289	177	306	210	340	201
Dysentery	54	26	42	22	41	22	53	27
Hookworm disease	21	11	26	9	10	4	33	13
Lethargic encephalitis	3	3			2	2	1	1
Measles	896	254	852	262	628	216	681	197
Paratyphoid fever	145	99	178	135	164	117	169	113
Poliomyelitis	16	14	26	21	16	16	17	15
Puerperal fever	32	28	31	28	38	33	27	25
Scarlet fever	274	98	240	112	216	116	222	105
Typhoid fever	1,167	462	1,196	509	1,267	529	1,258	566
Undulant fever	66	50	61	48	59	47	43	35
Whooping cough	386	136	455	126	336	125	324	110

MEXICO

Malaria and typhoid fever.—According to information dated October 14, 1935, health conditions in a number of isolated villages and rural districts near Matamoros, Mexico, particularly in the village of Rio Rico, were seriously affected by the September floods of the Rio Grande. Malaria was general throughout the flooded areas and was rapidly spreading. Numerous cases of typhoid fever were also present. The report stated that 48 rural settlements along the lower Rio Grande in Mexico had been inundated during the September floods and as a result many of the inhabitants of these settlements were suffering from malaria, typhoid fever, and other diseases. Stagnant pools were being treated with oil, quinine had been distributed, and general vaccination of the populace was in progress.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE —A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for October 25, 1935, pages 1512–1526 A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued November 29, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month

Cholera

Siam.—During the week ended October 12, 1935, cholera was reported in Siam, as follows: Sarapuri Province, 3 cases, 3 deaths; Singhapuri Province, 1 case.

Plague

Brazil—Bahia State.—During the month of September 1935, 7 cases of plague were reported near Bomfim, in the interior of Bahia State, Brazil.

Ecuador—Guayaquil.—During the week ended October 12, 1935, 14 cases of plague were reported at Guayaquil, Ecuador.

Egypt—Qena.—During the week ended October 12, 1935, 1 case of plague was reported at Qena, Egypt.

Hawaii Territory—Hawaii Island—Hamakua District Kukaiau.—A rat found October 6, 1935, at Kukaiau, Hamakua District, Island of Hawaii, has been found to be plague-infected.

Smallpox

Syria—Tripoli.—During the week ended October 12, 1935, 1 case of smallpox was reported at Tripoli, Syria.

UNITED STATES TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 39; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 NOVEMBER 8, 1935 NO. 45

MORTALITY FROM CERTAIN CAUSES DURING THE FIRST HALF OF 1935 [1]

This report covers mortality in 31 States and Hawaii for the first half of 1935, with comparative data for the first half of the 3 preceding years. In addition to the death rate from all causes, rates are shown for 4 groups of diseases and 18 specific causes, some of which are included in the groups. Infant and maternal mortality rates per 1,000 live births are also shown.

The rates are computed from current and generally preliminary reports furnished by State departments of health. Because of some lack of uniformity in the method of classifying deaths according to cause, some delayed death certificates, and various other reasons, these preliminary rates cannot be expected to agree in all instances with final rates published by the Bureau of the Census. The final figures are based on a complete review and retabulation of the individual death certificates from each State. The preliminary rates given in the accompanying table are intended to serve as a current index of mortality until final figures are available.

In a group of 26 States [2] with an estimated population of about 90,000,000 the death rate for the first half year was the same in 1935 as in 1934, 11.5 per 1,000 (annual basis). The rates in 1933 and 1932 were less, 11.1 and 11.3, respectively. In approximately the same group of States the rate in the first half of 1931 was 11.8. In the first quarter the rate for 1935 was identical with that for 1934, and in the second quarter it was practically the same, 11.0 in 1935 and 11.1 in 1934. In both quarters the rates were less in 1933 and 1932 than in 1935 and 1934.

Infant mortality was 58 per 1,000 live births in the first half of 1935, as compared with 61, 59, and 59 in 1934, 1933, and 1932, respectively. Of 27 States with complete data for both years, in 5 the rate increased in 1935 over 1934, in 2 it remained the same, and in 20 it decreased.

[1] From the Office of Statistical Investigations, U. S. Public Health Service.

[2] See footnote to table for States included.

Tuberculosis mortality declined from 57.6 per 100,000 in the first half of 1934 to 56.3 in the first half of 1935. The decline in 1935 from the 1934 rate was less than in preceding years. Of 29 States with complete data, in 19 the rate decreased in 1935 and in 10 it increased. There was a very minor epidemic of influenza in the first half of 1935. The death rate from influenza, 30.1 per 100,000, is higher than in 1934 (22.0), which year was relatively free from this disease, but less than in 1933 (37.3) and 1932 (34.7), when minor epidemics occurred. In every State the influenza death rate in the first half of 1935 was higher than in the same half of 1934.

The pneumonia death rate in 1935 was the highest in the 4 years included, but was only slightly above that for 1934, when little influenza was present. In 9 States the rate was higher in 1935 than in 1934, and in 20 States it was lower. In both 1935 and 1934 the measles and whooping cough death rates were higher than usual, and the high pneumonia rates may be due in part to complications of these diseases in which the death certificate did not carry the preceding cause.

Measles and whooping cough death rates were both slightly less than in 1934. For measles, 14 of the 29 States had lower rates in 1935 than in 1934 and 15 had higher. For whooping cough, 20 of the 29 States had lower rates in 1935 than in 1934 and 9 had higher.

The typhoid fever death rate for the first half of 1935 was 1.0 per 100,000, as compared with 1.3, 1.4, and 1.8 for the first half of 1934, 1933, and 1932, respectively. Nineteen of the twenty-nine States had lower rates in 1935 than in 1934. The crude rate for diarrhea and enteritis under 2 years per 1,000 total population was also less than in preceding years. The declining birth rate, with the resulting smaller proportion of the population under 2 years of age, would produce a decline in this crude rate. Using as a population base the births in the current half year and the corresponding half of the preceding year, the rates per 1,000 live births in the group of States were 2.0, 2.4, and 2.2 for the first half years of 1935, 1934, and 1933, respectively.

The death rates from heart diseases, cerebral hemorrhage, and cancer increased in 1935 over 1934. The rate from nephritis was less than last year, and the rate from diabetes was practically the same. The majority of these degenerative diseases have for many years been either increasing or maintaining approximately the same level.

Mortality from certain causes in the first 6 months of 1935, with comparative data for the corresponding period in preceding years

[Estimated population July 1, 1935, 90,257,000]

State and period	All causes, rate per 1,000 population (annual basis)	Rate per 1,000 live births			Death rate per 100,000 population (annual basis)																					
		Total infant mortality	All except malformations and early infancy	Maternal mortality	Typhoid fever (1, 2)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (16)	Lethargic encephalitis (17)	Meningococcus meningitis (18)	Tuberculosis, all forms (23-32)	Cancer, all forms (45-53)	Diabetes (59)	Diseases of the nervous system (78-89)	Cerebral hemorrhage, apoplexy (82a, b)	Diseases of the circulatory system (90-103)	Diseases of the heart (90-95)	Diseases of the respiratory system (104-114)	Pneumonia, all forms (107-109)	Diseases of the digestive system (115-129)	Diarrhea and enteritis, under 2 years (119)	Nephritis (130-132)
26 STATES [1]																										
January to June—																										
1935	11.5	58	27	5.9	1.0	5.2	3.0	4.1	2.0	30.1	0.3	0.7	2.7	56.3	112.6	24.9	111.5	88.8	293.3	266.8	114.4	101.5	66.0	6.1	85.2
1934	11.5	61	28	6.1	1.3	6.2	2.7	5.0	2.0	20.0	.4	.6	1.0	57.6	110.2	25.0	108.8	84.7	294.9	263.5	112.4	98.8	67.3	7.2	89.4
1933	11.1	59	27	6.2	1.4	2.5	2.6	2.8	1.9	37.3	.3	.7	1.3	60.1	106.3	23.9	109.0	84.2	271.4	238.8	95.7	83.4	64.3	6.9	86.4
1932	11.3	59	27	6.3	1.8	2.6	2.9	4.8	3.5	34.7	.4	.7	1.7	65.2	104.0	23.8	111.0	85.5	268.2	234.5	106.5	93.9	65.7	7.1	89.7
January to March—																										
1935	12.0	66	31	6.1	.9	4.7	3.1	3.7	2.6	45.8	.3	.6	2.5	56.0	110.5	25.7	115.1	92.4	308.2	280.0	136.4	123.3	63.7	4.3	87.6
1934	12.0	64	30	6.0	.9	5.2	3.2	4.3	2.6	27.7	.3	.7	.9	57.2	108.1	26.5	113.7	88.6	312.2	278.4	133.9	119.3	63.9	5.7	92.9
1933	11.8	65	31	6.3	1.1	1.8	2.9	2.8	2.5	62.6	.3	.8	1.5	50.8	105.8	25.9	113.8	88.4	286.8	253.0	120.5	107.5	60.3	5.2	89.3
1932	11.9	60	28	6.4	1.9	2.0	3.2	4.9	4.6	43.5	.4	.8	2.0	64.9	103.6	25.5	114.6	89.1	281.4	246.3	130.0	115.8	63.2	5.5	93.2
April to June—																										
1935	11.0	54	23	5.7	1.2	5.8	2.8	4.5	1.5	14.6	.3	.8	2.9	56.6	114.6	23.1	108.0	85.3	278.5	253.8	92.5	80.0	68.2	7.9	82.8
1934	11.1	59	25	6.1	1.8	7.2	2.3	5.7	1.5	12.4	.5	.5	1.0	58.0	112.4	23.6	103.9	80.9	277.8	248.8	91.1	78.5	70.6	8.7	86.0
1933	10.5	54	22	6.0	1.7	3.1	2.4	2.8	1.4	12.4	.4	.7	1.2	60.4	106.9	21.9	104.3	80.0	256.2	224.8	71.1	59.6	68.2	8.5	83.6
1932	10.8	58	26	6.3	1.7	3.1	2.7	4.8	2.4	26.0	.4	.6	1.4	65.4	104.3	22.2	107.3	82.0	254.9	222.7	83.0	72.0	68.3	8.8	86.1
JANUARY TO JUNE																										
Alabama																										
1935	10.7	(2)	(2)	(2)	1.9	9.9	.5	6.4	2.8	72.6	.2	.6	1.2	65.5	61.3	9.2	92.2	68.7	148.5	136.3	116.0	107.5	61.5	15.1	84.8
1934	10.7	76	48	6.0	2.2	18.1	.4	15.4	3.8	38.4	.4	.6	.4	67.6	57.4	11.3	90.9	65.1	159.2	147.3	110.6	102.0	71.6	17.9	79.2
1933	9.5	67	42	6.7	2.8	1.2	.4	6.7	2.5	47.7	.4	1.3	.4	71.1	55.1	9.2	83.9	57.1	135.4	124.4	69.9	64.1	58.4	14.1	79.0
1932	10.0	62	39	7.8	4.0	.4	1.1	7.2	4.1	40.7	.3	.7	.6	79.3	54.1	8.0	88.7	59.3	122.1	112.7	88.9	82.7	61.1	11.9	81.4

[1] States included are Alabama, California, Connecticut, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Montana, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Tennessee, Virginia, West Virginia, Wisconsin. Includes all of the States with available data for the 4 years covered by this summary. For a few causes, 1 to 3 States were omitted because of missing data.

Mortality from certain causes in the first 6 months of 1935, with comparative data for the corresponding period in preceding years—Continued

State and period	All causes, rate per 1,000 population (annual basis)	Rate per 1,000 live births: Total infant mortality	Rate per 1,000 live births: All except malformations and early infancy	Rate per 1,000 live births: Maternal mortality	Death rate per 100,000 population (annual basis): Typhoid fever (1, 2)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (16)	Lethargic encephalitis (17)	Meningococcus meningitis (18)	Tuberculosis, all forms (23-32)	Cancer, all forms (45-53)	Diabetes (59)	Diseases of the nervous system (78-89)	Cerebral hemorrhage, apoplexy (82a, b)	Diseases of the circulatory system (90-103)	Diseases of the heart (90-95)	Diseases of the respiratory system (104-114)	Pneumonia, all forms (107-109)	Diseases of the digestive system (115-129)	Diarrhea and enteritis, under 2 years (119)	Nephritis (130-132)
JANUARY TO JUNE—con.																									
California:																									
1935	11.8	51	21	4.7	.9	1.6	1.2	.9	1.7	11.7	.4	.4	2.1	76.3	131.4	25.2	108.0	82.1	362.4	319.8	79.5	67.5	73.9	5.2	82.4
1934	11.2	54	24	4.7	1.1	2.3	1.5	3.9	1.7	7.1	1.5	.4	.9	79.2	128.2	22.1	103.3	77.3	324.9	290.4	76.0	64.3	68.0	8.2	79.9
1933	11.7	55	24	5.1	.9	2.5	1.4	3.3	2.1	21.9	.1	.5	1.6	81.3	127.4	24.0	117.8	87.0	320.7	286.2	89.3	76.4	64.3	4.8	83.7
1932	11.1	54	24	6.2	1.1	1.6	1.0	2.3	3.4	13.0	.8	.5	1.7	87.1	119.5	21.3	107.6	79.8	294.8	260.5	82.2	69.1	64.8	6.7	86.2
Connecticut:																									
1935	10.9	47	(2)	5.6	.7	3.4	2.0	1.3	.9	12.3	.2	.5	1.1	47.2	123.8	34.6	(2)	(2)	(2)	242.7	(2)	90.0	(2)	1.5	92.7
1934	10.9	55	(2)	5.6	.5	.2	1.0	1.2	.4	10.1	(3)	.4	.7	46.8	122.0	28.6	(2)	(2)	(2)	240.4	(2)	88.7	(2)	3.9	94.9
1933	11.1	52	(2)	7.5	.5	1.0	2.0	2.3	1.2	35.7	(3)	.9	.5	54.0	130.6	25.3	(2)	(2)	(2)	216.0	(2)	93.1	(2)	4.5	92.0
1932	10.8	58	(2)	6.1	.7	1.8	1.7	3.9	1.0	22.5	.4	1.0	1.0	54.4	114.1	29.1	(2)	(2)	(2)	226.4	(2)	89.3	(2)	3.9	94.6
District of Columbia:																									
1935	18.2	62	29	4.9	1.6	(3)	3.2	.4	4.5	21.4	(3)	1.6	23.8	135.4	153.6	34.0	153.2	120.4	483.7	427.6	224.7	204.1	108.3	10.9	128.9
1934	17.5	68	38	3.1	.4	19.4	2.0	11.7	1.2	10.9	.4	1.2	.8	129.6	148.2	37.7	150.2	113.4	487.1	428.4	185.1	163.2	96.4	10.1	134.0
1933	16.5	64	26	5.0	1.2	1.2	4.9	.4	1.6	15.5	(3)	.4	2.9	135.3	153.2	27.7	167.0	127.1	428.6	353.6	149.9	131.6	107.1	9.4	129.6
1932	17.0	69	31	8.5	.8	(3)	4.4	5.7	4.8	17.8	.4	2.0	4.8	128.4	156.3	29.9	165.6	117.5	402.2	344.1	184.5	162.3	86.8	4.8	158.7
Florida:																									
1935	12.7	69	40	9.1	2.3	3.4	(3)	3.9	3.9	59.2	.6	(3)	.6	57.2	86.0	22.5	124.2	98.4	250.9	230.1	96.5	81.4	94.1	16.2	111.1
1934	12.9	70	37	8.0	3.1	9.6	.4	5.6	3.6	30.5	.5	.5	.1	62.1	81.6	17.1	130.8	99.0	255.8	236.3	104.5	90.6	94.7	14.3	124.9
1933	12.0	70	35	11.4	4.6	.1	.1	2.9	3.8	61.5	.5	.8	.8	66.1	82.1	15.9	121.3	92.6	208.8	191.4	76.9	65.2	73.6	8.2	122.2
1932	11.5	65	34	9.8	6.2	1.0	.6	1.8	5.2	35.8	.6	(3)	(3)	73.6	76.3	17.0	122.0	104.7	204.2	188.9	75.1	62.6	92.3	14.3	108.4
Georgia:																									
1935	11.3	75	(2)	8.0	3.7	1.5	.7	7.0	3.0	69.7	.7	.1	1.0	58.4	53.0	12.4	108.7	75.2	174.4	163.4	128.9	118.8	77.4	16.5	107.1
1934	11.9	88	(2)	8.2	5.6	32.5	.5	12.0	4.2	44.2	.6	.3	.7	60.0	53.9	12.9	113.4	74.4	180.7	165.9	139.5	128.5	74.2	17.2	104.5
1933	10.0	72	(2)	8.0	4.4	1.7	.4	6.4	2.7	66.2	.9	.1	.4	57.8	51.3	11.6	101.1	71.0	130.7	121.3	94.2	86.1	61.5	12.5	106.0
1932	10.7	70	(2)	9.7	8.6	.5	1.2	4.0	4.0	45.4	1.2	.6	1.0	67.7	48.8	11.9	118.4	81.6	143.7	132.2	110.4	101.1	62.6	10.6	111.9
Hawaii:																									
1935	8.1	68	42	5.4	2.4	(3)	(3)	3.3	(3)	7.6	(3)	(3)	1.4	75.3	63.4	15.2	61.1	46.4	119.8	111.2	82.8	72.0	68.6	24.1	70.5
1934	9.4	89	60	6.6	3.9	.5	(3)	16.5	1.0	20.9	.5	(3)	1.5	83.1	62.2	[illegible]	56.4	36.9	112.2	100.1	176.9	160.0	83.0	35.0	60.3
1933	9.5	79	50	5.3	8.0	.5	(3)	16.5	2.0	9.5	1.0	(3)	1.0	104.8	70.9	14.0	68.4	48.9	118.3	107.3	107.3	91.8	102.3	44.9	77.9
1932	9.9	82	(2)	(2)	2.0	12.8	.5	2.0	7.2	5.1	1.0	.5	4.6	96.7	67.0	8.7	(2)	50.1	(2)	98.2	(2)	115.6	116.2	57.8	64.5

Idaho																									
1935	10.9	61	25	7.3	1.4	2.7	5.0	10.8	.5	25.2	.5	3.2	5.4	27.5	71.6	14.4	98.1	72.9	225.5	173.8	141.8	123.8	64.8	.9	31.1
1934	10.8	50	32	5.5	2.7	6.3	3.6	3.1	3.1	19.3	1.8	1.3	3.1	35.9	73.7	11.2	113.6	82.6	209.7	178.3	142.4	127.6	64.2	2.7	40.9
1933	10.0	52	17	1.9	5.0	.9	(3)	.5	2.3	23.4	(3)	(3)	1.4	30.2	87.3	11.3	113.4	77.4	209.3	175.6	95.4	78.8	59.0	.9	36.0
1932	9.6	66	38	5.6	2.2	(3)	.9	(3)	3.6	21.5	.4	1.3	3.1	33.7	62.8	12.6	119.4	90.2	205.6	166.1	98.8	87.1	57.0	2.2	47.1
Illinois																									
1935	11.3	54	22	5.5	.7	7.2	7.7	3.3	2.8	24.6	.2	.6	3.7	54.0	124.8	25.1	98.5	74.2	306.0	284.4	107.7	96.8	68.6	8.5	100.2
1934	11.4	54	21	5.3	.8	4.3	4.9	3.4	1.5	13.1	.2	.5	2.1	54.2	123.0	29.7	102.2	73.5	304.5	282.1	101.0	90.0	70.1	4.6	109.2
1933	11.0	58	24	5.5	.8	1.2	4.9	.7	1.7	25.0	.4	.6	4.4	56.8	116.9	27.9	106.9	80.6	280.3	261.4	89.0	76.4	66.9	5.1	106.6
1932	10.9	58	25	5.5	.9	1.0	4.7	4.5	3.2	29.8	.5	.5	2.4	58.6	112.5	27.2	102.2	75.5	257.0	238.0	94.0	80.0	69.9	4.9	115.2
Indiana																									
1935	11.9	59	26	5.8	.5	5.0	4.3	5.7	2.7	38.3	.1	.6	3.8	51.6	114.1	15.2	(2)	133.5	(2)	278.6	(2)	111.6	(2)	3.2	71.0
1934	12.8	57	25	6.3	1.8	11.5	4.5	5.5	2.7	28.9	.3	.4	.9	55.4	111.2	19.2	(2)	126.4	(2)	274.4	(2)	97.2	(2)	3.9	81.7
1933	11.6	57	25	5.4	1.8	.6	2.6	2.2	3.3	48.1	.4	1.3	2.0	57.7	106.7	16.3	(2)	112.9	(2)	187.3	(2)	80.5	(2)	5.8	79.6
1932	11.8	59	28	5.6	1.0	.8	3.1	7.8	4.3	49.9	.2	.9	5.8	63.5	106.1	16.9	(2)	115.0	(2)	180.6	(2)	103.6	(2)	6.9	71.8
Iowa																									
1935	10.9	55	25	5.4	.8	12.1	3.1	1.6	2.0	33.1	.4	.8	2.1	28.2	128.5	23.6	134.0	108.9	269.7	242.7	109.9	99.9	57.0	3.1	65.3
1934	11.0	56	22	6.2	.5	3.9	2.8	4.4	1.9	26.9	.1	.9	1.3	25.6	122.9	24.9	153.3	120.4	249.7	217.0	112.3	98.2	59.6	3.0	67.8
1933	10.8	55	24	4.9	1.0	.3	1.5	2.3	1.2	56.4	2.3	1.1	2.0	26.6	123.4	21.3	143.8	116.8	256.0	201.4	113.0	91.5	52.0	1.5	45.[illegible]
1932	10.6	51	21	3.5	.8	.3	2.0	1.9	1.6	39.8	1.1	1.1	1.1	29.1	112.0	16.5	145.4	115.1	260.7	213.2	117.2	93.8	57.3	2.0	49.1
Kansas																									
1935	11.3	56	28	5.5	.4	22.4	2.5	3.5	2.0	49.7	.2	1.5	2.9	29.3	108.4	21.7	119.8	97.0	258.8	231.3	124.9	113.5	67.3	4.6	90.9
1934	10.3	50	20	6.3	.6	3.2	2.6	6.8	2.0	25.9	.1	1.4	1.5	28.4	105.1	25.3	117.2	93.2	236.7	209.8	82.9	73.4	70.6	4.0	97.4
1933	11.3	62	30	5.8	1.0	1.4	1.9	3.1	2.3	80.2	.2	.4	1.5	33.9	104.6	25.8	134.9	111.7	222.9	202.5	88.1	76.5	66.7	4.9	100.8
1932	10.2	49	19	6.7	.7	2.4	1.8	2.4	3.5	46.0	.2	.6	2.0	34.6	104.6	22.4	124.7	102.9	203.1	182.3	68.4	59.8	62.0	5.0	104.5
Louisiana																									
1935	10.9	77	42	7.7	7.2	9.9	.6	3.1	4.5	33.2	.6	.6	.9	76.6	73.3	14.7	90.6	67.2	200.2	176.2	106.7	95.7	79.9	15.8	105.7
1934	10.5	78	49	9.8	8.1	11.2	1.1	12.0	4.7	27.7	.3	.2	.8	71.5	72.8	13.2	83.0	56.3	213.5	193.2	94.5	81.6	70.2	20.6	104.0
1933	10.5	77	46	8.7	7.6	2.3	.4	5.3	2.2	53.1	.3	.2	1.7	74.6	70.3	12.4	84.7	62.2	203.2	185.3	81.4	71.3	70.7	16.4	98.7
1932	10.1	67	38	9.2	11.0	2.1	.5	5.0	4.8	29.4	.3	.4	1.5	77.2	59.0	11.6	79.1	60.4	195.5	180.3	87.2	73.4	65.4	13.3	99.5
Maryland																									
1935	13.5	64	30	5.4	1.1	2.2	2.6	3.8	1.2	25.0	(3)	1.1	4.9	86.3	129.2	27.5	143.0	118.4	321.2	297.0	150.8	138.2	67.1	7.9	141.4
1934	13.3	69	32	6.0	1.7	16.1	2.3	9.4	1.2	11.2	.4	.8	.1	81.3	124.2	25.5	134.9	108.3	318.1	289.8	144.6	130.2	57.2	6.8	152.9
1933	12.9	62	27	5.2	.7	.2	2.9	2.4	1.1	26.5	(3)	1.0	1.0	87.8	118.3	27.2	132.6	103.0	308.9	278.3	126.8	115.6	61.6	9.1	154.2
1932	13.3	70	36	4.7	1.6	2.0	2.0	7.8	4.0	29.0	.2	.6	1.1	95.7	116.4	27.8	145.2	111.8	304.4	278.1	140.2	114.1	71.4	13.8	149.5
Michigan																									
1935	10.6	56	22	5.4	.5	6.8	2.9	2.7	.8	21.6	(3)	.2	1.0	42.7	102.7	24.9	112.6	86.3	278.0	253.9	111.9	98.9	63.6	4.0	62.0
1934	10.7	57	22	5.8	.8	1.0	5.7	3.4	1.0	16.5	.2	.2	.6	46.0	101.4	23.6	119.3	91.2	278.0	252.7	106.5	92.7	67.4	5.0	64.5
1933	10.2	52	17	5.9	.6	4.1	4.6	3.7	2.3	28.1	.1	.4	.8	51.1	97.2	23.4	114.3	86.1	266.4	240.9	75.8	64.2	63.5	4.8	63.1
1932	10.3	57	22	6.3	.6	5.8	3.0	3.8	2.6	31.5	.3	.5	2.0	52.0	2.4	23.4	115.9	88.4	254.9	230.9	91.0	77.6	63.8	4.7	61.7
Minnesota																									
1935	10.5	50	20	5.6	.2	4.2	4.8	3.4	.5	24.4	.1	1.0	2.1	37.0	131.0	23.6	108.5	86.1	244.8	220.5	109.5	98.4	65.3	3.2	50.4
1934	10.6	49	18	5.9	.8	2.5	1.5	4.5	1.0	20.5	.3	1.4	1.0	39.3	130.1	24.1	107.7	84.7	252.6	227.7	110.8	96.5	96.6	2.7	56.1
1933	10.2	53	23	5.1	.6	4.8	2.2	3.0	1.1	41.0	.2	1.2	1.8	43.2	131.6	21.5	100.5	82.1	232.8	209.8	82.7	72.5	62.0	4.5	58.4
1932	9.8	47	15	4.3	.3	.2	2.7	1.2	.5	36.8	.3	.7	1.2	43.1	120.4	20.6	101.8	78.0	216.5	197.4	82.5	73.3	60.6	2.4	56.8
Mississippi [4]																									
1935	10.0	(2)	(2)	(2)	1.4	1.8	.4	6.0	3.4	76.0	.2	.1	1.2	52.0	53.9	11.6	73.4	59.6	120.7	105.9	77.8	83.7	50.7	9.1	91.8
1934	10.2	(2)	(2)	(2)	1.8	29.0	.4	15.4	2.4	38.9	.7	.6	.4	58.1	48.9	8.3	80.5	72.2	115.4	99.3	94.8	92.6	46.8	10.8	74.3
1933	9.5	(2)	(2)	(2)	3.8	4.1	.2	8.0	2.7	61.6	.2	.4	1.4	62.2	47.9	6.8	74.2	64.4	110.2	93.1	67.8	65.9	40.1	9.3	60.8
1932	9.2	(2)	(2)	(2)	2.5	(3)	.5	5.6	5.6	40.3	.8	.1	1.3	73.9	47.4	8.3	73.7	66.8	94.7	82.2	67.3	63.2	41.7	7.9	73.8

[2] Data not available. [3] No deaths. [4] 5 months only.

Mortality from certain causes in the first 6 months of 1935, with comparative data for the corresponding period in preceding years—Continued

State and period	All causes, rate per 1,000 population (annual basis)	Rate per 1,000 live births			Death rate per 100,000 population (annual basis)																				
		Total infant mortality	All except malformations and early infancy	Maternal mortality	Typhoid fever (1, 2)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (16)	Lethargic encephalitis (17)	Meningococcus meningitis (18)	Tuberculosis, all forms (23–32)	Cancer, all forms (45–53)	Diabetes (59)	Diseases of the nervous system (78–89)	Cerebral hemorrhage, apoplexy (82a, b)	Diseases of the circulatory system (90–103)	Diseases of the heart (90–95)	Diseases of the respiratory system (104–114)	Pneumonia, all forms (107–109)	Diseases of the digestive system (115–129)	Diarrhea and enteritis, under 2 years (119)	Nephritis (130–132)
JANUARY TO JUNE—con.																									
Montana:																									
1935	12.1	63	(2)	5.2	1.9	17.3	3.0	6.0	3.4	59.3	.4	1.1	3.0	45.4	100.6	18.4	109.3	83.7	225.7	208.8	170.1	155.1	104.4	6.4	79.2
1934	10.3	49	(2)	6.5	1.5	2.6	3.4	3.4	1.9	37.9	(3)	1.1	1.5	49.2	89.0	20.3	101.4	76.6	194.1	177.2	107.8	92.4	80.7	6.4	72.5
1933	9.7	59	(2)	5.2	2.9	4.4	2.9	4.4	2.2	60.6	(3)	1.8	.4	54.4	79.7	12.1	99.9	76.8	169.8	158.7	83.8	71.3	69.1	4.8	62.1
1932	9.9	49	(2)	5.3	2.2	3.0	1.5	6.0	.7	56.8	1.5	1.1	1.9	55.7	86.3	19.1	106.5	73.6	183.5	165.2	85.6	69.5	68.4	3.4	68.8
Nebraska:																									
1935	10.1	48	24	5.8	.6	11.3	3.5	1.2	1.4	35.1	.3	.6	4.2	22.2	100.0	20.1	132.0	103.3	211.8	194.0	127.4	111.6	66.6	2.9	49.3
1934	9.8	48	18	6.2	.4	2.3	1.7	8.5	1.2	21.7	.4	.6	1.2	24.7	111.4	20.7	124.5	99.1	205.8	185.6	103.6	92.0	69.8	3.0	59.2
1933	9.9	59	26	4.5	.3	1.0	2.0	1.6	1.3	56.6	.1	.4	.9	25.9	102.8	16.8	129.0	103.1	217.5	190.2	103.1	91.1	57.2	2.9	61.6
1932	9.4	45	16	5.4	1.3	.3	2.4	1.9	1.6	42.0	.3	.4	.7	22.5	102.1	23.8	116.0	95.3	196.1	174.3	90.6	69.7	62.2	4.0	82.9
New Jersey:																									
1935	10.6	51	(2)	4.8	.5	2.5	1.1	2.8	1.2	14.8	.3	.6	.8	52.4	119.2	30.0	100.3	80.6	325.0	302.9	91.0	81.0	56.0	3.3	86.4
1934	11.0	53	(2)	5.2	.4	2.0	2.4	1.6	1.4	8.1	.2	.9	.3	56.2	121.1	29.0	107.1	87.7	331.7	309.9	97.6	85.9	60.1	5.1	90.7
1933	10.8	50	(2)	5.4	.8	2.9	2.3	.7	.7	18.6	.1	.7	.6	60.0	115.8	30.2	110.6	86.3	303.5	280.8	98.3	86.9	62.7	4.8	92.2
1932	10.6	52	(2)	6.3	.3	1.5	2.1	4.2	2.6	22.2	.4	.7	.9	65.8	105.9	26.8	107.1	81.9	280.7	248.6	98.7	83.5	58.6	4.4	95.6
New York:																									
1935	12.1	54	23	5.7	.4	2.4	2.2	2.9	.9	10.4	.2	.6	2.7	60.1	140.8	34.3	101.3	78.8	370.2	336.9	119.5	108.4	68.1	6.5	86.2
•1934	12.4	58	25	6.0	.4	1.0	2.0	1.5	1.2	9.1	.5	.5	.8	62.6	137.5	33.7	76.8	52.6	400.6	343.6	125.9	113.5	71.9	7.1	91.4
1933	11.9	58	26	7.1	.4	4.6	2.5	2.6	1.3	16.5	.2	.9	.9	63.2	126.2	32.6	82.7	54.5	364.5	308.3	123.3	111.9	69.4	6.5	78.5
1932	12.2	58	25	6.4	.5	2.7	4.5	2.4	2.9	18.4	.3	.8	1.7	69.6	125.5	33.6	81.0	55.0	369.6	314.6	136.7	124.6	66.9	5.7	81.1
North Carolina:																									
1935	10.9	72	(2)	6.9	1.1	4.0	.6	12.7	3.2	49.5	1.5	.4	1.2	62.4	51.3	10.7	(2)	(2)	(2)	(2)	(2)	121.4	(2)	16.8	(2)
1934	11.3	83	(2)	7.5	.7	16.8	1.6	13.9	4.5	31.2	.4	.3	.7	68.6	52.2	11.5	(2)	(2)	(2)	(2)	(2)	137.4	(2)	17.2	(2)
1933	9.8	73	(2)	6.7	2.1	3.6	.9	5.9	2.7	48.4	.2	.4	.2	68.3	48.6	10.7	(2)	(2)	(2)	(2)	(2)	79.6	(2)	20.3	(2)
1932	9.8	71	(2)	7.5	3.4	2.6	1.0	8.6	3.5	27.2	.5	.9	.8	67.0	44.3	11.6	(2)	(2)	(2)	(2)	(2)	104.3	(2)	15.5	(2)

Ohio																									
1935	12.5	57	25	6.8	.6	3.6	4.5	3.8	2.8	36.4	.4	1.1	4.6	56.2	118.6	26.9	139.5	117.5	296.0	265.0	107.0	97.2	61.3	3.4	83.7
1934	12.1	60	26	6.6	1.0	3.9	4.3	5.8	2.1	23.4	.1	.7	1.2	56.5	115.9	26.1	141.2	118.1	300.2	267.7	115.0	103.0	63.4	3.5	88.2
1933	11.2	53	19	6.7	1.0	3.1	3.6	2.1	1.9	35.3	.3	1.2	.6	56.4	112.5	23.5	130.4	109.8	286.6	254.8	78.1	68.4	60.7	3.7	81.9
1932	11.7	60	25	5.8	.8	4.2	4.1	7.0	3.5	41.5	.3	.8	1.2	64.0	109.9	26.8	139.0	116.6	287.5	252.2	97.5	92.2	58.5	4.6	83.1
Pennsylvania																									
1935	11.7	58	29	5.4	.6	4.3	2.8	2.5	1.7	28.9	.2	.9	1.4	49.1	109.0	29.3	114.9	87.7	321.6	297.5	123.4	107.8	56.2	5.2	92.7
1934	11.9	67	35	6.5	.8	4.9	3.4	3.8	2.5	20.9	.2	.6	.7	52.0	105.9	30.8	114.7	89.2	322.4	289.8	123.5	108.0	61.2	7.0	100.6
1933	11.3	57	26	5.4	.5	1.7	4.1	1.7	2.7	37.0	.4	.7	1.2	53.5	103.4	28.6	111.9	88.5	286.9	260.7	93.4	80.7	58.5	7.0	101.1
1932	11.7	62	30	6.5	1.1	4.0	3.7	5.6	4.8	39.8	.4	.7	1.6	57.3	102.6	26.8	118.7	92.0	293.8	258.1	115.7	101.9	62.8	8.2	101.1
Rhode Island																									
1935	11.9	55	20	2.9	.3	1.7	.6	1.7	.6	12.5	.3	.3	4.0	53.0	139.0	37.3	119.1	98.0	377.7	353.2	109.4	99.7	65.8	6.0	102.8
1934	12.0	60	23	6.1	.9	[3]	.9	4.3	[3]	10.9	.3	.3	.6	46.0	136.2	33.4	124.3	100.3	354.5	329.3	112.5	100.5	61.7	4.6	120.5
1933	12.0	60	20	5.0	.3	[3]	2.0	2.9	.6	31.6	[3]	.6	[3]	54.3	135.9	36.5	125.8	102.6	317.4	292.4	103.7	94.8	66.9	4.6	127.0
1932	12.7	65	29	5.2	[3]	11.8	6.6	1.7	6.6	18.2	.6	.9	[3]	58.9	143.9	37.6	131.5	108.3	311.4	286.6	148.8	136.9	70.2	4.6	125.1
South Carolina																									
1935	11.5	90	[2]	10.6	6.1	1.8	.2	11.5	1.5	73.7	.8	1.0	1.8	53.3	45.7	11.1	112.4	99.9	204.9	191.7	116.7	109.5	33.5	8.2	97.1
1934	11.6	104	[2]	11.1	3.7	17.4	.5	18.3	3.0	53.9	.7	2.3	.7	56.5	46.9	12.3	[2]	[2]	204.0	[2]	[2]	120.8	33.6	[2]	109.1
1933	9.6	64	31	4.3	8.3	1.1	2.9	4.6	2.3	7.6	.6	.3	.3	45.0	83.2	22.9	107.9	81.5	191.6	159.8	89.8	79.7	49.3	4.6	58.8
1932	8.2	53	24	4.2	2.0	[3]	1.4	5.2	3.4	37.9	1.1	.3	.9	41.4	83.6	16.1	84.2	67.2	179.0	158.9	63.5	50.8	59.2	4.3	39.6
South Dakota [4]																									
1935	9.9	62	33	8.0	.7	9.2	2.1	4.4	1.4	55.7	1.4	.7	.3	41.4	90.6	20.9	107.4	81.0	158.3	138.1	156.6	139.2	54.4	5.8	61.5
1934	10.0	66	31	6.1	1.0	30.2	2.7	9.9	1.0	40.5	.7	.3	[3]	35.0	88.8	23.0	109.4	83.3	171.1	149.8	120.7	110.1	60.0	5.5	60.0
1933	10.1	68	33	4.2	10.0	.7	3.1	4.8	2.4	80.2	.7	.3	.3	46.8	87.1	23.8	107.4	83.3	199.4	166.7	102.3	91.6	52.3	5.5	62.0
1932	8.3	53	24	4.3	2.4	[3]	1.4	5.8	3.1	42.0	1.4	[3]	.7	41.3	84.6	16.2	85.7	68.5	184.4	166.1	66.4	52.3	60.9	4.5	40.2
Tennessee																									
1935	10.8	69	42	7.7	2.8	2.3	.5	22.9	3.9	62.5	.6	.6	5.0	91.4	66.1	12.1	103.9	81.4	160.1	145.9	142.8	121.4	67.6	11.9	63.7
1934	10.9	77	47	6.6	3.0	30.1	1.5	8.4	3.1	47.6	1.0	1.1	1.4	88.8	62.4	11.6	100.6	80.0	162.2	150.0	130.8	109.2	73.4	14.9	64.1
1933	10.2	73	47	6.1	4.3	2.3	1.1	6.1	2.7	62.0	.7	1.1	.8	92.6	56.7	10.7	86.7	59.8	116.1	99.2	98.0	85.8	72.3	14.4	58.9
1932	10.6	70	43	7.0	5.2	.2	.6	7.5	3.5	59.3	.4	.8	1.9	98.8	54.1	10.7	89.8	61.5	118.2	103.5	104.0	95.1	70.7	14.2	68.9
Virginia																									
1935	12.6	71	[2]	5.8	1.1	10.5	1.2	11.9	3.5	62.9	.4	.6	5.3	80.0	75.9	17.3	133.0	105.5	267.5	247.0	123.7	112.7	54.7	7.7	97.0
1934	12.3	72	[2]	7.0	2.1	9.9	1.4	7.5	3.9	38.2	.5	.7	1.6	81.0	73.3	19.4	127.5	100.2	258.0	239.9	115.1	102.1	54.2	9.4	97.8
1933	11.5	71	[2]	6.1	2.5	3.6	1.7	4.7	2.4	63.1	.2	.5	1.2	84.6	73.1	15.4	130.5	104.1	217.9	199.8	93.1	82.6	59.0	12.9	92.8
1932	11.5	70	[2]	6.9	2.7	.9	1.2	17.3	5.1	49.8	.7	.8	1.6	90.4	67.9	15.7	117.5	94.0	207.6	191.9	96.9	85.3	60.1	11.7	98.7
Washington																									
1935	11.4	45	15	5.8	.4	2.1	1.7	2.9	1.1	23.3	.9	2.0	2.4	51.6	132.9	23.9	124.9	102.3	306.2	279.0	69.6	59.9	64.5	2.1	82.1
1934	10.8	[2]	[2]	[2]	1.8	1.4	1.1	3.6	.6	14.3	.9	2.0	1.4	49.3	129.3	20.9	117.6	91.8	292.7	260.1	71.9	62.0	57.2	1.6	75.1
West Virginia																									
1935	10.2	65	32	6.4	3.1	11.9	4.9	11.2	5.8	44.4	.3	.6	4.4	61.9	71.3	12.1	93.5	72.1	161.5	145.4	118.3	109.0	59.3	5.9	70.5
1934	9.7	69	30	6.3	1.8	3.4	3.8	10.6	4.5	36.1	.6	.5	1.8	54.3	64.5	10.6	102.9	82.4	147.1	126.1	110.3	99.1	47.1	7.8	65.5
1933	9.2	[2]	[2]	5.2	3.3	4.1	1.6	5.2	4.0	55.8	1.3	.2	1.1	56.0	66.7	10.5	103.6	72.6	126.4	115.0	84.1	73.0	61.5	15.7	80.1
1932	9.6	[2]	[2]	5.6	4.1	16.5	2.4	13.7	8.6	52.3	.7	.4	1.3	56.0	61.9	13.2	109.1	80.5	122.3	109.7	100.0	88.9	64.2	19.5	63.9
Wisconsin																									
1935	10.4	54	21	4.1	.1	3.9	5.2	1.5	.5	29.5	.1	1.1	1.7	37.3	123.3	24.8	[2]	88.3	[2]	255.5	[2]	77.5	[2]	4.7	70.9
1934	10.5	56	22	4.3	.3	3.7	1.7	4.2	1.0	15.8	.3	.3	.6	40.1	122.2	24.7	[2]	88.8	[2]	243.7	[2]	87.4	[2]	5.0	71.5
1933	10.3	56	21	5.6	.5	1.5	1.6	1.6	.5	43.0	.3	.5	.7	44.0	108.7	27.0	[2]	92.5	[2]	237.1	[2]	65.8	[2]	6.5	65.9
1932	10.3	55	21	4.5	.3	2.7	2.3	2.7	1.9	36.1	.5	1.1	1.1	49.4	117.9	23.7	[2]	91.4	[2]	223.7	[2]	78.8	[2]	5.9	69.2

[2] Data not available.

[3] No deaths.

[4] 5 months only.

RAT LEPROSY

Observations Concerning Transmission of the Infection through the Nose

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The portal of entry through which the micro-organism of the leprosy-like disease of wild rats enters the tissues has not been determined. It has been suggested that it is probably introduced through small wounds in the skin caused by trauma or by the bites of insects. The skin of rats is particularly subject to minor injuries or abrasions produced by biting, scratching, or the plucking of hairs, and it is assumed that the micro-organism may be introduced into these lesions by soiling them with material containing the inoculum. This is thought to be accomplished through the soiling of the teeth or the claws which inflict the wounds, or by bodily contact with the open lesions of infected animals. This belief is perhaps supported to a slight degree by the fact that the infection can occasionally be accomplished experimentally by abrading the skin and rubbing suspensions of the bacteria into it. However, it is to be noted that these suspensions must contain very large numbers of bacteria in order to obtain even a small percentage of infections by this method.

The production of the disease by the introduction of the inoculum through the bites of the ectoparasites common to rats has been attempted by several investigators, including Marchoux (*1*) and Markianos (*2*), who have concluded that the infection is not transmitted in this manner. Wherry (*3*), Currie and Hollmann (*4*), and Markianos (*2*) have all reported that they have found acid-fast bacteria resembling the organism of rat leprosy in suspensions made of the crushed bodies of such parasites which had fed on infected animals, but the subcutaneous introduction of such suspensions by Markianos did not produce the infection.

The possibility of the entrance of the organism through the mucous membrane of the nasopharynx seems to have had less consideration. The bacterium has been found to be commonly present in the noses of leprous wild rats in San Francisco and among white rats which were experimentally infected by subcutaneous injections.[1]

[1] The strain of rat leprosy used throughout these experiments was developed in white rats by direct transfer from leprous wild rats in San Francisco. Its identity has been repeatedly checked during this experimentation by its morphology and tinctorial qualities, and by its failure to grow on artificial media and in guinea pigs, as well as by the microscopic and histological changes produced by it in rats.

TABLE 1.—*Number of rats in which acid-fast bacteria were found in the nose*

LEPROUS RATS

	Wild rats Natural infection			White rats Experimental infection (subcutaneous inoculation)		
	Total examined	Nose positive	Nose negative	Total examined	Nose positive	Nose negative
Skin lesions with ulcerations	24	20	4	0	0	0
Skin or lymph node lesions without ulcerations	32	22	10	58	48	10
No lesions; [1] bacteria in lymph nodes or skin	3	0	3	0	0	0
Total	59	42	17	58	48	10

NONLEPROUS RATS (CONTROLS)

	Wild rats [2]			White rats		
	Total examined	Nose positive	Nose negative	Total examined	Nose positive	Nose negative
No lesions; [1] no bacteria in lymph nodes or skin	55	3	52	70	0	70

"Positive" indicates that acid-fasts were found.
"Negative" indicates that acid-fasts were not found.

[1] The axillary and inguinal lymph nodes of the wild rats were those which were regularly examined. Attention was directed to the cervical nodes in the experimental studies at a later date.
[2] These rats came from the same or nearby localities in which the leprous rats were caught

While there is a likelihood that the wild rat may infect his nose by contact with ulcerated lesions, it is improbable that the subcutaneously inoculated animal does so. It is also unlikely that the inoculated rats had infected their noses previous to the inoculation, since both the test animals and the controls were selected at random from the clean supply stock. Since the organism appears to be so frequently present in the nose, it may be that its dissemination from this site is a natural phase of the life cycle of the parasite. Its introduction into the nose of a new host can be accomplished either through the nosing and licking which goes on between rats, or perhaps through droplet infection, and minute wounds of the skin could thus be readily soiled subsequently. This has been shown by finding acid-fast bacteria resembling that of rat leprosy in the noses of 54 of 75 normal rats kept in small groups in contact with experimentally infected rats in boxes for periods of 3 to 8 months (fig. 1). It seems very improbable that these findings are accidental, since similar bacteria were not found in the noses of 70 control rats which had not had such contacts (table 1). Furthermore, it was observed that nurslings show positive findings after a shorter period of exposure than occurs with older animals, and in general a longer period of exposure of all ages results in a greater number of positive findings. The possibility of spreading the bacterium by indirect methods is

suggested by the findings among groups of normal animals which were kept in cages about 4 inches distant from those containing animals with ulcerated lesions about the face for periods of 3 to 5 months. Acid-fast bacteria were found in 30 of 44 of the exposed groups which were examined.

Among the rats which were held in contact with experimentally infected rats in boxes, 8 were held for 8 months, and their examination included preparations from their cervical lymph nodes. Acid-fast bacteria were found in the cervical nodes of 3 of this group. In 1 of these 3, one node was swollen and adherent to the surrounding structures. Microscopic section of this node revealed a typical rat leprosy granuloma containing large numbers of acid-fast bacteria (fig. 2). These findings suggested the probability of infecting rats by placing the inoculum on the nasal mucous membrane.

During the course of 3 years a number of experiments have been made in which a few drops of a suspension of rat leproma have been instilled once or twice into the nostrils of each of a group of rats without traumatising the mucous membrane. Ninety-four rats which were inoculated in this manner were subsequently examined. Acid-fast bacteria were found in the cervical lymph nodes in 69 of them (fig. 3). Among 66 which were thus treated and examined 3 or more months later, 58 showed positive findings in the cervical nodes. The larger percentage of negative findings occurred in those groups which were examined after less than 3 months.

Among 1 lot of 8 of the 66, the examinations and findings were as follows: One, 3 months later, with bacteria in mediastinal nodes; four, 7 months later, with bacteria in the cervical nodes; one, 9 months later, with bacteria in the nodes and skin without macroscopic lesions in the skin; one, 11 months later, with bacteria and macroscopic lesions in the skin; one, 15 months later with bacteria in macroscopic lesions generally scattered through the skin and viscera (fig. 4).

In each of two other instillation experiments the bacteria were found in locations remote from the nose. In one animal the bacteria were in mesenteric nodes, and in another they were in lepromata, which developed in the cervical node, in the adjoining neck tissues, and in the lung.

The animals used in these instillation experiments were kept in boxes or cages in which there were no infected animals, but precautions were not taken to avoid all indirect contact through ectoparasites. Examinations were made, however, of other superficial lymph nodes, "axillary" and "inguinal", of 29 of those in which positive findings in the cervical nodes were obtained after 3 or 4 months had elapsed since the nasal instillations. Acid-fasts were not found in any.

Figure 1.—Cluster of acid fast bacteria in a smear from the nasal mucous membrane of a contact rat

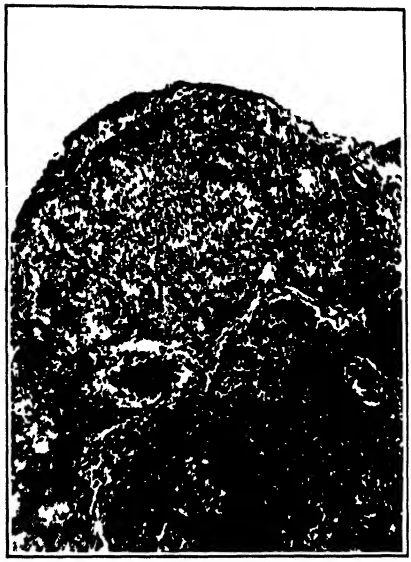

Figure 2 (a)

Figure 2 (b)

Figure 2 (c)

Figures 2 (a), (b), and (c) show three magnifications of a leproma in a cervical lymph node of a contact rat. Figure 2 (c) shows the bacteria in one of the nests of epithelial cells (b) of the granuloma

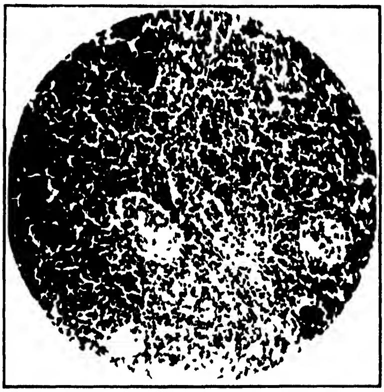

FIGURE 3 (a)

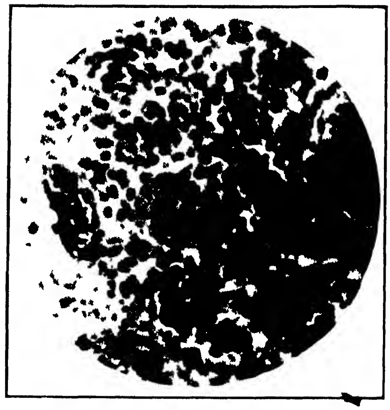

FIGURE 3 (b)

Microscopic lesions (a) and bacteria (b) in a cell of the lesion in the cervical lymph node of a rat into whose nose a suspension of the rat leproma had been instilled. The size of this node was but little, if any, larger than normal, but the node was of firmer consistency.

FIGURE 4 (a).—A portion of the skin of a rat which was infected through the nose. Note the appearance, which is characteristic of natural infections.

FIGURE 4 (b).—A section of the skin of (a), showing the infiltration typical of rat leprosy.

A final experiment was made in which each of 22 rats were searched for ectoparasites, dusted with pyrethrum, treated by instillation, and held segregated for 3 months as one rat to a box or compartment in a room separated from other experimental work. Dusting with pyrethrum was repeated several times during the 3 months, and but 2 to 4 mites were found on any rat when they were killed for examination. The cervical lymph nodes of 19 of these rats contained acid-fast bacteria when examined at the end of the 3 months' period, but no acid-fasts were found in the axillary or inguinal nodes of any of them, nor were any found in the cervical nodes of 16 uninoculated control rats held in groups in boxes in the same room throughout the period.

CONCLUSIONS

Klingmueller (5) states that no one has shown that the bacillus of rat leprosy will traverse the normal nasal mucous membrane of the rat. The observations and findings made in these experiments seem to justify the conclusion that the bacterium will pass through the uninjured nasopharyngeal mucous membrane which is normal from that standpoint. Acid-fasts were commonly found in the noses of rats infected with rat leprosy; and under the conditions of these experiments, the bacterium was transmitted to the noses of normal rats either by direct or by indirect contact with diseased rats, and the disease developed subsequent to a deposit of the inoculum on the mucous membrane without trauma to it.

DISCUSSION

The frequency with which infection through the nose occurs in nature among wild rats is unknown However, the cervical lymph nodes are not commonly the site of macroscopic changes in such infections, whereas the axillary or inguinal nodes are frequently enlarged or exhibit some change These latter findings would suggest a portal of entry other than the nose On the other hand the bacteria and microscopic lesions are often found in lymph nodes which do not present gross changes, and it seems highly probable that the microorganisms may pass from such nodes to the circulation without producing macroscopic changes in them. Further observations of microscopic preparations of the cervical lymph nodes of wild rats should be of assistance in determining the frequency with which they are involved, and may thus indicate the frequency with which the infection enters through the nose.

No conclusions are offered from these findings in a leprosy-like disease in rats concerning the processes of leprosy in man. Nevertheless, it seems proper to point out analogous conditions and obser-

vations in the two diseases, since consideration of the similarities which occur in some other diseases of animals has contributed to the knowledge of analogous diseases of man. Both diseases are apparently caused by acid-fast bacteria of comparable morphology, which have not been consistently cultivated in artificial media or in more than one species of host; both diseases are characterized by changes in the blood vessels, the formation of granulomatous infiltrations, extension along contiguous lymph spaces, and by the invasion of the lymph and blood streams by the respective bacteria which may produce granulomatous changes in many localities or tissues of the body, but with a marked selectivity for those of the skin and superficial lymph nodes. The respective bacteria can be demonstrated in or on the nasal mucous membrane in most cases of each disease and in some individual persons or rats in which macroscopic or clinical evidence of disease is not detected. Horcicka, Kitasato, L. Glueck, Roemer, Plumert, Serra, and Zechmeister (*6*) are all quoted by Klingmueller as having reported the presence of acid-fast bacteria in the noses of those who are in frequent intimate contact with leprous persons. Sorel and Leboeuf (*7*) are quoted by Klingmueller, and Marchoux (*8*) is quoted by Jeanselme as having discovered acid-fasts in the lymph nodes of attendants to leprous persons, thus suggesting the invasion of the tissues of apparently well people by the bacterium of leprosy.. It will be noted that similar observations have been made in rats in these experiments on the leprosy-like disease.

Jeanselme (*9*) states in a recent publication that no leprologist believes any longer that the habitual route of infection with leprosy is through the nose. He does not cite investigations in substantiation of their viewpoint, and it is believed that further studies should be conducted before this hypothesis is discarded. This latter opinion seems especially pertinent, since the suggestions that different areas of the skin afford all portals of entry are not well supported by clinical or epidemiological experience.

SUMMARY

1. Acid-fast bacteria have been found frequently in the noses of wild rats infected with the leprosy-like disease of rats, and likewise in white rats experimentally infected by subcutaneous inoculation.

2. Normal white rats in prolonged direct or indirect contact with infected rats harbored acid-fast bacteria in the nose and developed the disease under the conditions of the experiments.

3. Rat leprosy has developed in white rats subsequent to the instillation of a suspension of rat leproma into the nostril without trauma to the nasal mucous membranes.

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STUDIES OF SEWAGE PURIFICATION

III. The Clarification of Sewage—A Review [1]

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It is frequently remarked that present-day methods of sewage treatment have greatly outstripped the development of rational theories of plant behavior. This situation, of course, is by no means unique in the general field of practical applications. In sewage treatment, nevertheless, the rationalization of plant procedures has doubtlessly been greatly retarded by the (at times) hopeless outlook of the fundamental problem regarding the quantitative description of reactions between the oxygen-consuming impurities of sewage, at a concentration of approximately 0.001 M, and the various kinds of "activated sludges", also known as "biological slimes" and more accurately described as zoogleal aggregates.

With such unpromising material at hand, it is to be expected that the theories in vogue are generally founded on more or less pertinent analogies with more amenable systems rather than on the direct examination of sewage colloids or bio-colloids. Sustained research, for example, on the various theories of adsorption as a mechanism for the removal of organic matters from sewage by sludges becomes impossible when no absorption is observed, using sludge drawn from an activated sludge plant. Likewise, the evaluation of various theories of colloidal precipitation is a discouraging task when the sewage colloids refuse to agglomerate or when the agglomerated solids decline to settle. The development of biological theories is greatly hampered by unsurmounted difficulties in the matter of cultivating protozoa and allied organisms in pure culture; bacterial counts may fail to yield more than 1 percent of the organisms present

[1] This is the first of a series of papers summarizing the studies of adsorption by activated sludge conducted at the stream pollution investigations station of the United States Public Health Service, Cincinnati, Ohio.

in the sludge. Theories of enzymatic action have frequently been advanced, but in no case have the hypothetical clotting, lytic or oxidative agents been produced.

In another sense, the present unsatisfactory state of the sewage problem is closely related to the controversy, as reviewed by Wilson (1930), "over the imagined respective functions of the biological and physical agencies." No single theory has been proposed which will account satisfactorily for all of the diverse phenomena of sewage treatment. In general, the physical or colloidal theories have explained the purification of sewage either by the coagulation of the sewage colloids in various ways or else by the absorption of the organic matters on the sludge, to the frequent neglect of the subsequent biological oxidation of the coagulated or absorbed impurities. On the other hand, this preliminary process of clarification has often been ignored or even denied by the proponents of the biological theories.

It is to be surmised that the various theories of sewage purification do not all possess an equal degree of credibility. Nevertheless it is safe to assume that biological oxidation in some form must necessarily be considered in any general theory of sewage purification by the usual processes. Greater uncertainty exists as to the validity of the clarification concept. For the purposes of the present discussion, leading to the presentation of a new theory of sewage clarification, the review of the scattered literature will therefore be devoted largely to the phenomenon of clarification as a process preliminary to and distinctly separated from the subsequent process of biological oxidation.

EARLIER THEORIES

The earliest recorded scientific investigation of sewage treatment is probably that of Frankland (1868) with the British Rivers Pollution Board. Working under laboratory conditions, with glass cylinders, Frankland gave the first clear-cut demonstration of the role of atmospheric oxygen in the purification of sewage and laid the foundation for the principle of "intermittent filtration." Frankland assumed that the dissolved organic matters of sewage were oxidized by the oxygen of the air as the sewage dripped through a filter or a porous soil.

With the recognition of the biological character of filter growths, the simple theory of direct oxidation advanced by Frankland became untenable. The numerous reports of the Lawrence Experiment Station (1887 et seq.) are to be consulted for the development of theories of direct biological oxidation of organic matters in the *slow* passage of the sewage through a filter. Commenting on these earlier observations Dunbar (1908, pp. 121–122) says: "If Frankland's experiments are to be regarded as the basis of modern biological methods of sewage treat-

ment, they have really attained this position with the aid of the systematic and scientifically conducted experiments of the Massachusetts State Board of Health."

Dunbar's classical experiments were conducted at the Hamburg Hygienic Institute (1897–1900). He considers that the oxidation of sewage matters in their slow passage through a filter was a possible explanation "* * * so long as it could be maintained that sewage remained about 3 days in the filter; but when it was shown that the sewage left a 3-foot filter thoroughly purified within 10 minutes * * * the above explanation fell to the ground. It cannot be assumed that micro-organisms decompose highly complex molecules of organic substances within a few minutes or seconds * * *. It can only be assumed that the dissolved organic matters are first separated from the sewage during its passage through the filter, and are retained in the filter to be decomposed and oxidized by the microorganisms during the succeeding period of rest." After examining theories of mechanical retention and of chemical combination, Dunbar concludes that "an explanation of the purification process must be sought in absorption phenomena."

The general theory of filter action proposed by Dunbar, and systematized by Ardern (1921), was somewhat as follows:

1. Coarse particles are transferred to the filtering media by surface attraction.
2. Dissolved matters are retained by adsorption phenomena accelerated by the growth of a biological slime on the filter materials.
3. The absorbed materials are oxidized by biological action and also by oxygen "ozonized by the high pressures existing in the gelatinous film."
4. The absorption process is prevented from ceasing by the action of micro-organisms under aerobic conditions.
5. There is a residue of organic matter, highly resistant to bacterial action, which either accumulates in the filter or is discharged with the effluent.

Dunbar's concept of the action of sewage filters is therefore properly described not simply as an "absorption theory" but rather as a well-balanced summary of the then existing knowledge regarding sewage purification.

Stoddart's criticism of Dunbar's theory will serve as an illustration of objections brought to bear against absorption as a step preliminary to biological oxidation. "It has already been shown that the starting point is the assumption that micro-organisms cannot 'decompose highly complex molecular organic substances within a few minutes or seconds' * * * and with the exposure of the fallacious nature of this assumption, which may be characterized as an unwarrantable repression of scientific imagination, the theory itself falls to the

ground." (Stoddart, 1909, p. 201.) Stoddart's experiments controverting Dunbar's absorption theory were based on comparisons of rates of flow through filters of solutions of sodium chloride and of ammonium chloride. It will be shown in subsequent papers of this series that the absorption of ammonium chloride should be prevented by the sodium chloride, unless special precautions should be observed. It is also possible that the absorptive capacity of Stoddart's filter was exceeded. It must be admitted, nevertheless, that Dunbar's theory when first proposed was by no means free from objections, particularly in the matter of the removal from sewage of dialyzable or noncolloidal matters such as ammonia.

Biltz and Krohnke (1904), in their important paper on the first definite recognition of the colloidal nature of sewage, list three methods whereby the clarification of sewage may be accomplished. Chemical precipitation is represented by the use of ferric salts. Biological methods of sewage treatment are regarded as affording a means for the formation of absorption compounds between the colloids of sewage and the slimy, gelatinous coatings of the filter materials. These biological slimes, however, are regarded simply as colloid surfaces. The bacteria themselves, although identified with the biological slimes, are regarded as precipitants in reversed analogy to agglutination. The mechanical theory proposed by Biltz and Krohnke is referred by them to the absorption theory of Dunbar and earlier writers; they do claim, however, to have established a rational connection between the nature of the sewage and the methods of clarification. As to the fate of the absorbed materials, it was assumed that they might be oxidized by the action of "ferments" or else directly (unmittelbar) by atmospheric oxygen, "at all events essentially by purely chemical means." (*cf.* Jones and Travis, 1906, pp. 72 and 161.) This unsubstantiated part of the theory advanced by Biltz and Krohnke does not detract greatly from their demonstration that, ahead of corrections, at least one-third to one-half of the sewage matters are present as colloids.

Jones and Travis (1906), in their widely discussed paper on the clarification of sewage by filters at Hampton (England), advanced a somewhat different theory for the "de-solution" of sewage colloids. They maintain that the deposition of solids on the filter materials "is dependent upon the action of surfaces, as such", and not on the colloidal properties of the biological slimes. The efficiency of a filt[illegible] should therefore be increased by the use of finely divided mate-[illegible] Jones and Travis (1906, p. 192, discussion) were afterwards willing to concede to Biltz and Krohnke, and also to H. W. Clark of the Lawrence Experiment Station, that "* * * colloids in gel form encouraged further deposition, and to this extent the bacterial coating of the (filter) material undoubtedly played a part."

Biochemical oxidation was practically disregarded by Jones and Travis (1906) and, as pointed out by Wilson (1930), could properly be omitted if their theory was restricted to sewage clarification. The claim that "the bacteria play only a subsidiary part in the purification" was, nevertheless, highly objectionable to proponents of biological theories. The view of bacterial purification held by Jones and Travis was clearly an expectancy of sludge liquefaction. "In Hampton, at the outset, absolute confidence was reposed in voracious capacity of the bacteria. Indeed, the announcement was made that the solids of sewage would all be 'eaten by the organisms'", thereby preventing the clogging of a relatively fine (0.5-inch) filter. Disillusionment in respect to the hydrolysis of the highly resistant sludge humus by micro-organisms is caustically expressed in the quoted statement, "The best organism I have at the sewage-works is the man with a barrow" (*cf.* Dunbar).

Although the so-called "Hampton doctrine" of Jones and Travis is frequently contrasted with the more general theory of Dunbar, it is clear that the views expressed by these workers, and also by Biltz and Krohnke, are in substantial agreement as to the mechanism for the primary removal of suspended or colloidal matters from sewage. In each case a purely physical theory is proposed, which does not account for the removal of matters in true solution, such as ammonia, sugar, etc. The Dunbar theory, however, does make suitable provision for the subsequent oxidation of the absorbed materials. The introduction of the time element, with its implication of preliminary absorption instead of direct oxidation by atmospheric oxygen or direct action by bacterial cells, must be regarded as Dunbar's greatest contribution to the sewage problem.

RATE OF CLARIFICATION

While it is plausible or even necessary to assume that some preliminary process of absorption must be operative in the clarification of sewage, it was by no means easy to separate this process from the accompanying process of biological oxidation when methods of sewage treatment were restricted to contact beds or trickling filters. The phenomenon of clarification may nevertheless be readily demonstrated by a suitable arrangement of parts in biological oxidizing devices utilizing "activated sludges" as absorbents. The experiments of Theriault and McNamee (1930) will serve as an example.

Using a biological device, designed to simulate a small stream with polluted water trickling over slime-covered stones, it was shown at the Stream Pollution Investigations Station of the United States Public Health Service that, starting with a grossly polluted water, the production of a highly clarified effluent could be effected in a period of

flow of about 20 minutes. The apparent reduction in the incoming pollution, neglecting absorption, was of the order of 90 percent. For polluted waters incubated under laboratory conditions, in the absence of deposited sludge, an equivalent degree of actual purification by biological oxidation could be accomplished only in 10 days, under comparable temperature conditions. The term "clarification" will be used in referring to the marked over-all improvement which results when sewage is treated for a brief period of time with certain biological slime growths, the so-called "activated" sludges. The term "purification" is properly restricted to the relatively slow but none the less effective process of biological oxidation. It is obviously desirable to distinguish clearly between these two methods whereby the pollutional characteristics of a sewage may be diminished.

Reference will again be made to these experiments later in this paper. Their particular virtue lies in the fact that the time element was very clearly defined and, also, that the tests were conducted on a semiplant scale in close approximation to natural conditions. It is reasonable to assume that the phenomenon of clarification demonstrated in these experiments is identical with the rapid improvement noted in trickling filters, contact beds, and similar devices where the control of experimental conditions offers many difficulties. In each case, however, it is certain that biologically active sludge is present and it can be assumed that the period of contact is brief, although divergent opinions on this particular point have been expressed.

Clarification, likewise, undoubtedly occurs in the activated sludge process, where the biological slimes are blown through the sewage instead of remaining adherent to stones as in processes of filtration. The time element in the activated sludge process can only be estimated with difficulty in an actual installation. Activated sludge, nevertheless, is admirably adapted to laboratory experimentation, and several workers have reported on its clarifying power under controlled conditions.

In the discussion following the paper by Young and Melling (1918, p. 19), Garfield refers to the experiments of Barraclough in which a reduction of about 50 percent in permanganate oxygen consumed, together with a decrease in free ammonia, was observed in absorption experiments where samples were taken "immediately" after mixing activated sludge with sewage. "The first point was that the activated sludge, upon being mixed with the sewage, immediately effected a purification which might be compared with the action of a very heavy chemical precipitant, * * *." Barraclough evidently was dealing with a very "good" sludge.

Cambier (1920) presented experiments indicating that the removal of the colloidal matters of sewage, together with the ammonia, is effected from the very start of the contact period with activated

sludge, although not at the first instant of contact as interpreted by Butler and Coste (1927). In work with fresh sludge approximately 50 percent of the ammonia was absorbed in 15 minutes, without any corresponding indication of nitrification.

Butler and Coste (1927) were unable to confirm the claims of Cambier regarding the fixation of ammonia by activated sludge, although they did find a marked "at once" action of activated sludge upon sewage. The average improvement, measured in terms of permanganate oxygen consumed, was about 29 percent when the period of contact was reduced to the minimum consistent with good mixing. "We think that the ability to produce a stable supernatant or filtrate as an immediate result of mixing activated sludge with sedimented sewage might constitute a test of activity of activated sludge."

Herb (1928) found that the oxidizability of the supernatant liquor was reduced by about 16 percent when a sewage was aerated for 5 minutes in the presence of 25 percent of activated sludge by volume. A steady state corresponding to 50 percent reduction was reached in about 30 minutes.

Theriault and McNamee (1930) reported a reduction of about 65 percent in the oxygen demand of a sewage following 10 minutes of agitation with a biological slime under laboratory conditions. This corresponds to the 90-percent reduction in 20 minutes observed under plant conditions.

Parsons (1929) could not obtain more than a slight "instantaneous effect" in his sewage clarification experiments using activated sludge as an absorbent. He suggests that the results of Butler and Coste may be in error because of an intervening filtration. Parsons, nevertheless, did obtain a marked improvement in his equilibrium experiments using a 30-minute period of agitation.

Grant, Hurwitz, and Mohlman (1930, p. 240) present a very consistent set of absorption curves, indicating a reduction of about 80 percent in oxygen requirements in 40 minutes, with little change when the aeration of the sludge-sewage mixtures was extended to 160 minutes.

Seiser (1928) concluded that the absorptive capacity of fully aerated activated sludge is largely exhausted in less than 1 hour.

The discrepancies in the graded series of observations just reviewed are probably more apparent than real. Negative results for the removal of ammonia, even though organic matters were readily removed, are satisfactorily explained by Butler and Coste (1927) on the basis that the sludge used in their experiments was drawn from a plant in which the second or nitrification stage of biological oxidation had not yet been fully established. As shown by complete deoxygenation curves, ammonia was not removed in the laboratory

experiments of Theriault and McNamee (1930) using sludge drawn from the upper sections of their artificial stream. Ammonia was readily removed, however, at "downstream" sections of the same installation.

Values reported by different observers for the percentage removal of organic matter from a given sewage cannot, of course, be compared without reference to the strength of the sewage, the absorptive capacity of the sludge, and other factors. The "at once" effect noted by Barraclough, and also by Butler and Coste, does not exclude later manifestations of the same phenomenon continued at a diminishing rate as the exhaustion of clarifying power is approached.

Negative results are seldom reported in the literature but they nevertheless have generally been obtained by the writer in preliminary experiments with sludges which are now believed to have been already fully saturated with sewage matters. It should obviously be desirable to work with fully activated or regenerated material in any attempted demonstration of the clarification process. With these explanations, it must be concluded that the evidence regarding the existence of a very rapid process of clarification is reasonably definite. If the phenomenon in question does occur with a given sludge, it should be completed in 30 or 40 minutes when pushed to the limit of the absorptive capacity of the sludge.

It is necessary to keep this definition clearly in mind so as to distinguish between clarification, as such, and the subsequent reactivation of the sludge or the regeneration of its clarifying power through the biological oxidation of absorbed materials. The statement that "2 or 3 hours are required for clarification by the activated sludge process" should be interpreted as including time for the period of regeneration. Clarification in the sense of turbidity removal, as by bacteria-eating plankton, is yet another phenomenon which is probably never completed in 30 or 40 minutes. On the other hand, the clarifying action of chemical precipitants may be regarded as closely related to the phenomenon under consideration. At all events the term "clarification" will be used only in the relative sense and not in the absolute sense with its connotation of complete removal of turbidity. A sewage may still remain quite turbid when clarified to the extent of 29 percent as in the experiments of Butler and Coste.

MECHANISM OF SEWAGE CLARIFICATION

Having shown the relation of clarification to the general theory of sewage treatment, and having presented the evidence regarding the validity of this useful concept, it will now be of interest to look more closely into some of the suggested explanations of the associated phenomena.

Mention has already been made of the explanation offered by Biltz and Krohnke for the efficacy of ferric salts in the precipitation of sewage colloids which, on the basis of migration experiments, had been shown to be negatively charged. It is to be noted that these experiments refer to the sewage colloids and not to the sludge. Surface attraction was suggested by Dunbar, and also by Jones and Travis, as a mechanism for the removal of the coarser or suspended matters by filter materials or by deposited sludge.

Theories of mutual coagulation of sewage colloids by the neutralization of electrical charges have frequently been advanced, in distinction to precipitation by outside agencies. With due regard to conventions regarding electrical charges, Cavel (1931), for example, reports that negative colloids, such as Congo red, are absorbed by activated sludge. Hence the sludge must be positively charged and, by further inference, the sewage colloids should be negatively charged. Dienert (1922) is less definite in his statement that the sewage colloids seem to be negatively charged while the sludge itself appears to be positively charged. Buswell (1928, p. 319) says: "One serious objection to the colloidal theory of coagulation is that the colloidal particles in sewage and the activated sludge particles are, so far as we are able to determine, both negatively charged. Since adsorption of colloids is most effective between oppositely charged particles, it should not be applied to the conditions of the activated sludge particles without reservation." Baly (1931) considers that, were it not for this observation of Buswell and Long (1923), the most attractive theory concerning the mutual coagulation of sewage and sludge colloids by the neutralization of electrical charges, "would seem to be one that could offer a completely satisfactory explanation of the activated sludge and activated filter bed processes of purification." To avoid this difficulty Baly (1931) has proposed a theory in which, as reported by Lumb (1933), it is assumed "that weakly charged colloidal particles will associate with strongly charged bacteria of the same sign, because the free energy of the whole system is thereby decreased." It should be incorrect to conclude that, by one theory or another, sewage colloids will always be mutually coagulated, regardless of sign.

In criticism of the colloidal theories of sewage precipitation it should be recalled that the suspended matters of sewage are by no means all of colloidal dimensions. Moreover, the colloidal theories at best cannot account for the removal of the considerable proportion of the nitrogenous and other oxygen-consuming impurities which are present in true solution. The presence of bacteria in the sludge particles should not be regarded as evidence of a transfer of the micro-organisms from the sewage to the sludge. Local growth on the favorable medium afforded by the sludge is to be considered.

The actual removal of bacteria from the sewage liquor may be largely accomplished by bacteria-eating plankton. It is not clear, moreover, that the previous history of the sample has always been considered in determining the character of electrical charges on activated sludges. The pH value of the liquid is often disregarded and the magnitude of the electrical charge appears to have been generally ignored, except by Baly.

From another angle it must be considered that the Baly theory, as applied to sewage colloids, does offer an explanation for the agglomeration of sewage colloids akin to the growth of drops by distillation from smaller to larger ones or, for that matter, to the growth of precipitates, as in water purification, from the stage of barely recognizable turbidity to the condition of visible "flocs."

In this case there can be no question as to the phenomenon itself and, furthermore, it must be considered that all of the particles composing the flocs originally possessed the same electrical sign. It appears reasonable, therefore, to assume a similar mechanism for the agglomeration of sewage colloids into sludge particles. Separate consideration should be given to the absorption of other organic matters by the sludge particles.

The biological theories of clarification are so intermingled with notions of oxidation that mechanisms for the rapid removal of organic matters from sewage are frequently obscured, although Johnson (1914, pp. 130–1), with reference to the action of the upper portion of a filter receiving crude sewage, is reasonably definite in his statement that "The filter material rapidly becomes coated with a slimy or gelatinous growth of *Zooglea ramigera,* which may be regarded as a large number of bacteria embedded in a gelatinous matrix." The gelatinous character of these zoogleal formations enables them to "absorb *soluble* polluting substances—as already described in Dunbar's absorption theory." The functions of a different class of filter organisms are emphasized by Buswell (1928, p. 331): "As indicated in the previous discussion, there are two groups of reactions which take place in trickling filters, (*a*) bioprecipitation and, (*b*) oxidation, or nitrification, as the latter is usually called. Bioprecipitation is accomplished by the larger organisms, the chlamydobacteriaceae or 'giant bacteria', the fungi ('especially molds'), the larger protozoa, and certain higher animals. These organisms are found to compose the bulk of the growths on the filter stones. A certain amount of oxidation is accomplished incidentally by these organisms, since they give off carbon dioxide."

With particular reference to the activated sludge process, the "Bioprecipitation Theory" is described as follows: "In view of previous work of other authors cited and the data of the present paper, we wish to propose the following statement of the theory of the activated

sludge process. Activated sludge flocs are composed of a *synthetic* gelatinous matrix similar to that of Nostoc or Merismopedia, in which filamentous and unicellular bacteria are embedded and on which various protozoa and some metazoa crawl and feed. The purification is accomplished by ingestion and assimilation by organisms of the organic matter in the sewage and its resynthesis into the living material of the flocs. This process changes organic matter from colloidal and dissolved states of dispersion to a state in which it will settle out" (Buswell and Long, 1923). Buswell (1931) describes activated sludge as follows: "The animal inclusions of the sludge made up a very small part of the entire mass. The base of the sludge was composed of zoogleal masses intermixed largely with filamentous bacteria and occasional *Zooglea ramigera.*" The surface area afforded by the zoogleal masses is estimated to be at least 500 square feet per cubic foot of aeration chamber. The importance of the zoogleal masses of bacteria has also been pointed out by Taylor (1930), and more recently the cultural and other characteristics of these gelatinous formations have been studied by Butterfield (1935) in this laboratory.

Buswell (1928, pp. 318-319) states that "there is practically no absorbed precipitated or coagulated amorphous matter in these sludge particles, but that they are composed entirely of active, growing microscopic organisms * * *. From what we know of the metabolism of micro-organisms it is probable that the unicellular forms absorb through their membrane such soluble forms of organic matter as are able to pass through this membrane, and that they also secrete enzymes which are capable of peptizing or liquefying colloidal particles too large to be directly absorbed. Protozoa, on the other hand, can easily be seen to approach and ingest visible particles of organic matter." The claim that activated sludge contains "practically no absorbed, precipitated, or coagulated amorphous matter" evidently refers to the fully activated material and not to sludge recently exposed to sewage matter. Likewise, the assumption that the sludge particles "are composed entirely of active, growing microscopic organisms" implies that the zoogleal masses, as a whole, are endowed with animate energy. As these gelatinous masses have been studied only bacteriologically, such a concept of zoogleal activity, although generally accepted, has probably accrued by default.

Parsons (1929) proposed an enzymatic theory coupled with "direct cell action" in explanation of the rapid removal of organic matters in sewage clarification. The protozoa are not mentioned, and as it appears unlikely that colloidal matter is taken up directly by bacteria, enzymes are introduced to account for the breaking down of larger particles. Substances in true solution are then transferred to the living organisms by osmosis. Parson's hypothetical enzyme, like

Buswell's is a lytic agent and not the clotting enzyme of the earlier chemists.

"Direct cell action" is assumed in Parson's theory of clarification as well as in the older theories of biological action. It is difficult, however, to visualize "direct cell action" by bacteria, because of the intervening gelatinous matrix in which most of the bacteria are embedded. On the other hand, "direct cell action" by the protozoa, etc., is an undeniable fact. Thus it is certain that to some extent the coarser particles of raw sewage are attacked and disintegrated by various species of plankton. Furthermore, the comminuted material may be visibly ingested by these relatively large organisms. By "coarser particles" in this connection are meant particles barely visible to the unaided eye. Suspended matters of greater dimension are, of course, infrequent even in crude sewage and they should be absent from the screened or settled sewage actually applied to filters or mixed with activated sludge.

Opinions as to the importance of protozoa in the clarification of sewage have ranged from the emphatic views of their usefulness expressed by Cramer (1931) to the suggestion by Fairbrother and Renshaw (1922) that the protozoa in activated sludge might be eliminated through the use of certain dyes because of their interference with the process. Butterfield, Purdy, and Theriault (1931) have held that the primary function of the protozoa is to prevent the bacterial population from reaching a stalemate, thereby stimulating bacterial growth with accompanying oxidation. The validity of the more restricted theories of biological action is nevertheless conditioned by the fact that the clarification of sewage, as defined in this paper, cannot very well be credited to the activities of either the bacteria or the protozoa. The action of the protozoa in the disintegration of coarser food particles and in the removal of bacteria from the sludge liquor must be regarded as a continuing process which is certainly not circumscribed by any 30-minute limitation. In the practical absence of quantitative data, the most favorable view of the matter would be to credit the protozoa with the removal of the excess population of bacteria from the body of the liquid. In this sense the protozoa should be credited with a secondary clarifying effect. The disintegration of coarser particles is probably accomplished by the protozoa only after these suspended matters have been agglomerated as a result of the primary clarification of the sewage.

As to the action of enzymes in the disintegration of coarser particles, it is tempting to replace Parson's hypothetical lytic agent by the protozoa, although bacterial enzymes are specifically mentioned by him in his important paper. Endoenzymes may account for the intracellular liquefaction or lysis of ingested food particles. There

is no evidence, however, of the existence of exocellular enzymes capable of liquefying suspended matter in 30 minutes or thereabouts. From the nature of the sludge floc any enzymes liberated by the bacteria, unless greatly diluted, should be stored in the gelatinous matrix. Lytic action should only be expected after the suspended matters have been collected on the floc. It should also be considered that the definite isolation of enzymes from the sewage or sludge has never been accomplished.

Theriault and McNamee (1930), in experiments already referred to, investigated the possibility that the extraordinary rate of apparent purification or clarification which obtained in their artificial stream was in reality an oxidation induced by the presence of a relatively high concentration of enzymes in the biological slime (sludge mat) deposited on the stream bed. The hypothetical enzyme visualized in these experiments was therefore an oxidase and not a clotting nor a lytic agent. Clarification by bacteria, or by combinations of bacteria and plankton, had been ruled out by known facts concerning their rates of oxidation. Reasons existed, however, for suspecting the existence of a more rapid oxidation process, loosely described in terms of the then ill-defined "immediate" oxygen demand of sewage and of sludges and tentatively ascribed to enzymatic action. Using the apparatus described by Theriault and Butterfield (1929), complete deoxygenation curves were accordingly obtained from which the respective rates of satisfaction of the "immediate" oxygen demand and of the oxygen demand related to biological activity could be deduced.

TABLE 1.—*Oxygen demand of sludge*

Period of incubation	Hours									
	1	2	4	6	11	23.5	29.5	47	74	95
OXYGEN DEMAND—P. P. M.										
Rapid process (Y_2)	26	49	86	113	154	185	188	190	190	190
Slow process (Y_1)	8	16	32	48	87	177	217	325	465	556
Sum [1] (Y)	34	65	118	161	241	362	405	515	655	746
Observed	35	59	120	150	246	356	399	513	663	740

[1] Calculated by the formula,

$$Y = Y_2 + Y_1 = 190.3\ (1 - 10^{-0.003271}) + 1088.2\ (1 - 10^{-0.06505}).$$

As shown in table 1, the disappearance of atmospheric oxygen could very accurately be described in terms of two concurrent reactions, the slowest one corresponding to the normal rate of bacterial oxidation and reaching an asymptote in 20 days, and a much faster reaction which, however, was only completed in 20 hours or thereabouts. The results were therefore disappointing in respect to the existence of a major oxidation process which proceeded to 90 percent

completion in 20 minutes. The experimental conditions in these experiments were such that the conclusions as to the rates of oxidations could be checked by striking a very satisfactory balance between the observed decrease in the organic matter content of the sewage and the increased oxygen demand of the sludge mat. It is significant that the rate of bacterial oxidation deduced from these experiments accords satisfactorily with that observed in repeated experiments with river waters. The rate of satisfaction of the so-called "immediate" demand does not exclude certain types of enzymatic action. The assumption regarding the presence of exo-cellular enzymes in the sludge mat therefore remains a plausible but undemonstrated possibility. The existence of this relatively rapid process of oxidation is undeniable, and the same effect has since been repeatedly observed with sludge drawn from an activated sludge plant.

Absorption effects were invoked by Theriault and McNamee (1930) in explanation of the rapid clarification of sewage by activated sludges.

SUMMARY

It is apparent from the foregoing review that definiteness of statement in regard to the various phenomena of sewage treatment implies a recognition of the all-important element of time. With the information at hand regarding underlying rates, it has become possible clearly to separate the basic phenomena of sewage treatment into processes which approach completion, respectively, in days, hours, or minutes. On this basis, it is evident that the participation of the biological elements as a major factor in the primary clarification of sewage is definitely ruled out, unless the difficult hypothesis is introduced of direct absorption by bacteria, etc., without accompanying oxidation. If the clarification process is referred to enzymatic action or to the activities of protozoa, it is still necessary to provide a mechanism for the rapid transfer of organic matters to the enzyme substrate or to the protozoan nidus, in either case, the sludge floc.

From various angles, therefore, attention should be focused on the floc itself as the primary absorbent, apart from embedded bacteria, secreted enzymes, or attending protozoa. Such a view of sewage clarification, while plausible enough, raises a difficult question in regard to the nature of the gelatinous matrix which has hitherto been generally regarded as an indissoluble component of the bacteria. New light on this seemingly intractable problem is afforded by the recent announcement (Public Health Reports, Feb. 1, 1935) that the adsorbent principle in activated sludge had been definitely identified as a base-exchanging substance, chemically the same as the zeolites of water purification. The data substantiating this proximate analysis of the gelatinous matrix in activated sludge will be

presented in the next paper of this series. A discussion of numerous and more or less obvious implications as regards the theory or practice of sewage treatment will be given in succeeding papers.

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DEATHS DURING WEEK ENDED OCT. 19, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 19, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,865	7,836
Deaths per 1,000 population, annual basis	11.0	10.9
Deaths under 1 year of age	493	597
Deaths under 1 year of age per 1,000 estimated live births	45	56
Deaths per 1,000 population, annual basis, first 42 weeks of year	11.4	11.3
Data from industrial insurance companies:		
Policies in force	67,783,476	67,015,611
Number of death claims	11,498	12,803
Death claims per 1,000 policies in force, annual rate	8.8	10.0
Death claims per 1,000 policies, first 42 weeks of year, annual rate	9.7	9.9

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Oct. 26, 1935, and Oct. 27, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 26, 1935, and Oct. 27, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934
New England States:								
Maine		2		1	45	4	0	0
New Hampshire						1	0	0
Vermont	3				32	2	0	0
Massachusetts	11	17			53	27	5	1
Rhode Island		3			4		0	0
Connecticut	6	3		1	58	51	0	0
Middle Atlantic States:								
New York	34	46	[1] 7	[1] 10	234	122	6	3
New Jersey	20	10	3	12	23	19	0	0
Pennsylvania	49	70			53	256	4	2
East North Central States:								
Ohio	95	111	9	45	58	104	3	0
Indiana	99	100	27	28	6	65	3	1
Illinois	84	118	16	8	20	132	5	3
Michigan	8	16	3	2	22	[illegible]	1	2
Wisconsin	5	8	26	6	55	117	1	2
West North Central States:								
Minnesota	6	10		1	14	60	2	0
Iowa	28	18	3		2	11	2	2
Missouri	93	87	42	17	26	72	3	1
North Dakota	7	4			3	33	0	0
South Dakota	4				3	4	0	0
Nebraska	16	16			40	1	0	0
Kansas	12	3	3	2	3	50	0	0
South Atlantic States:								
Delaware		4		1	56		0	0
Maryland [3]	10	9	6	16	7	9	2	2
District of Columbia	18	8	1			2	4	0
Virginia	82	164			15	118	4	1
West Virginia	66	92	16	18		46	2	0
North Carolina	124	138	8	8		30	2	1
South Carolina	13		185		6	2	3	0
Georgia [3]	57	71					0	0
Florida [3]	24	14			1	2	0	0

See footnotes at end of table.

***Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 26, 1935, and Oct. 27, 1934*—Continued**

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934
East South Central States:								
Kentucky	74	78	9	11	65	4	0	2
Tennessee [3]	72	80	22	18	2	43	4	0
Alabama [3]	45	62	36	17	9	26	1	0
Mississippi [2]	36	27					0	0
West South Central States:								
Arkansas	22	23	12	4	2		0	2
Louisiana	28	38	12	3	13	11	0	2
Oklahoma [4]	25	19	16	28	2	1	2	8
Texas [3]	170	75	153	129	7	39	3	3
Mountain States:								
Montana	4	4	5	4	10	47	0	0
Idaho	1	10	2	3			0	1
Wyoming	1				18	3	0	0
Colorado	18	11			6	48	0	2
New Mexico	7	3	2	4	8	19	0	0
Arizona	8	1	29	5	2	20	0	0
Utah [2]	1				1	5	0	0
Pacific States:								
Washington	3	2			88	106	1	0
Oregon	1		21	23	108	7	1	0
California	65	42	24	19	137	156	2	2
Total	1,555	1,617	698	444	1,317	1,912	66	38
First 43 weeks of year	27,581	29,823	108,928	53,887	702,700	678,037	4,793	1,937

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934
New England States:								
Maine	6	2	22	15	0	0	2	9
New Hampshire	0	0	9	9	0	0	0	0
Vermont	4	0	5	9	0	0	1	1
Massachusetts	35	2	120	122	0	0	2	2
Rhode Island	7	0	12	8	0	0	1	1
Connecticut	9	0	44	25	0	0	1	2
Middle Atlantic States:								
New York	45	7	271	251	0	0	10	26
New Jersey	22	0	68	91	0	0	1	5
Pennsylvania	1	4	291	338	0	0	14	17
East North Central States:								
Ohio	0	6	200	388	2	0	25	36
Indiana	4	3	125	121	3	2	7	12
Illinois	12	15	392	343	5	6	20	32
Michigan	14	5	139	196	0	1	9	16
Wisconsin	1	17	275	365	4	7	4	10
West North Central States:								
Minnesota	0	1	151	57	0	16	3	1
Iowa	1	1	82	50	4	3	10	10
Missouri	1	0	143	70	0	0	16	17
North Dakota	1	0	28	30	0	0	8	4
South Dakota	2	1	42	9	12	0	1	0
Nebraska	0	0	35	21	5	3	0	0
Kansas	1	4	88	47	2	3	5	4
South Atlantic States:								
Delaware	0	0	4	11	0	0	4	4
Maryland [3]	1	0	81	106	0	0	16	0
District of Columbia	3	0	13	18	0	0	2	8
Virginia	4	4	68	127	0	2	29	22
West Virginia	0	2	173	155	0	0	10	25
North Carolina	3	0	135	151	0	1	8	6
South Carolina	1	0	7	15	0	0	5	12
Georgia [3]	0	1	33	33	0	0	13	7
Florida [3]	1	0	7	4	0	0	0	8

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Oct. 26, 1935, and Oct. 27, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934	Week ended Oct. 26, 1935	Week ended Oct. 27, 1934
East South Central States:								
Kentucky	7	3	77	76	0	0	12	19
Tennessee [3]	1	1	87	93	0	0	13	26
Alabama [3]	1	3	14	33	0	0	11	14
Mississippi [2]	0	0	16	27	1	1	6	6
West South Central States:								
Arkansas	0	0	18	8	0	1	4	13
Louisiana	3	1	14	16	1	1	33	31
Oklahoma [4]	0	0	21	13	0	0	18	22
Texas [3]	3	7	78	37	0	1	32	35
Mountain States:								
Montana	0	12	52	38	10	0	1	3
Idaho	0	3	20	2	0	1	1	2
Wyoming	0	0	14	1	0	1	0	0
Colorado	0	0	107	99	0	0	3	4
New Mexico	0	0	6	15	0	0	33	26
Arizona	0	0	11	14	0	0	2	2
Utah [2]	1	0	52	17	0	0	0	2
Pacific States:								
Washington	5	25	41	46	31	17	6	7
Oregon	2	2	30	75	0	0	4	2
California	21	31	190	106	0	0	14	13
Total	223	163	4,001	3,991	80	67	420	523
First 43 weeks of year	9,839	6,650	202,863	170,269	5,686	4,140	15,351	18,054

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Typhus fever, week ended Oct. 26, 1935, 29 cases, as follows: Georgia, 13, Florida, 1; Tennessee, 1; Alabama, 4; Texas, 10.
[4] Exclusive of Oklahoma City and Tulsa.

Summary of Monthly Reports from States

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August 1935										
Colorado	3	31			23		3	65	1	29
September 1935										
California	13	129	61	54	325	7	101	416	4	79
Florida		34	4	56	11	2	1	23	0	13
Kansas	2	45	3	4	18		7	183	30	35
Louisiana	1	91	51	689	24	8	6	28	0	108
Mississippi	3	123	995	10,012	26	324	2	77	2	33
Montana	1	5	48		14		2	123		12
New Hampshire								14	0	4
New York	40	98		8	290		1,054	568		147
Oklahoma [1]	6	79	102	539	4	10	1	50	1	83
Oregon			30	13	210		4	97	1	5
Rhode Island	1	4			15		137	33	0	2
Tennessee	19	164	111	470	21	31	14	186	1	158
Texas	2	265	89	4,026	18	28	6	92	2	208
Virginia	9	114	245	79	25	8	64	97	76	6
Washington	3	8	15		83	1		109	28	16
Wisconsin	4	14	98		173		16	427	6	19

[1] Exclusive of Oklahoma City and Tulsa.

August 1935

	Cases
Colorado:	
Chicken pox	19
Epidemic encephalitis	1
Impetigo contagiosa	2
Mumps	57
Paratyphoid fever	2
Rocky Mountain spotted fever	1
Whooping cough	51

September 1935

	Cases
Actinomycosis:	
California	2
Anthrax:	
Oklahoma [1]	1
Botulism:	
California	2
Chicken pox:	
California	280
Florida	4
Kansas	56
Mississippi	148
Montana	59
New York	211
Oklahoma [1]	8
Oregon	27
Rhode Island	1
Tennessee	15
Texas	4
Virginia	37
Washington	114
Wisconsin	224
Dengue:	
Florida	1
Mississippi	11
Texas	6
Dysentery:	
California (amoebic)	11
California (bacillary)	27
Florida (bacillary)	4
Kansas (bacillary)	1
Louisiana (amoebic)	2
Mississippi (amoebic)	88
Mississippi (bacillary)	368
Montana (bacillary)	2
New York (amoebic)	4
New York (bacillary)	91
Oregon (amoebic)	3
Tennessee (bacillary)	13
Texas (amoebic)	3
Texas (bacillary)	3
Virginia (diarrhea included)	234
Epidemic encephalitis:	
California	9
Kansas	9
New York	14
Oklahoma [1]	1
Oregon	1
Texas	2
Virginia	3
Wisconsin	2
Food poisoning:	
California	19
German measles:	
California	166
Kansas	6
Montana	4
New York	72
Washington	33
Wisconsin	50

September 1935—Continued

	Cases
Hookworm disease:	
California	1
Louisiana	5
Mississippi	301
Impetigo contagiosa:	
Kansas	5
Oklahoma [1]	4
Oregon	35
Tennessee	15
Washington	6
Mumps:	
California	483
Florida	24
Kansas	128
Mississippi	153
Montana	62
Oklahoma [1]	6
Oregon	37
Rhode Island	59
Tennessee	15
Texas	111
Virginia	33
Washington	125
Wisconsin	676
Ophthalmia neonatorum:	
New York	3
Oklahoma [1]	2
Tennessee	2
Virginia	2
Paratyphoid fever:	
California	5
Florida	3
Kansas	3
New York	10
Oregon	5
Tennessee	7
Texas	13
Virginia	6
Puerperal septicemia:	
Mississippi	27
Tennessee	5
Washington	1
Rabies in animals:	
California	49
Kansas	3
Louisiana	18
Mississippi	2
New York [2]	2
Oregon	1
Texas	20
Washington	1
Rabies in man:	
Washington	1
Relapsing fever:	
California	2
Rocky Mountain spotted fever:	
Tennessee	1
Virginia	2
Scabies:	
Oregon	47
Tennessee	10
Septic sore throat:	
California	6
Kansas	6
Louisiana	3
Montana	24
New York	23
Oklahoma [1]	45
Rhode Island	3

September 1935—Continued

	Cases
Septic sore throat—Con.	
Tennessee	5
Virginia	1
Washington	4
Wisconsin	4
Tetanus:	
California	5
Kansas	4
Louisiana	4
New York	1
Rhode Island	1
Virginia	2
Trachoma:	
California	10
Kansas	4
Mississippi	9
Montana	46
Oklahoma [1]	3
Tennessee	26
Virginia	1
Wisconsin	2
Trichinosis:	
California	6
New York	11
Oregon	1
Tularaemia:	
California	32
Louisiana	1
Tennessee	1
Texas	1
Virginia	8
Typhus fever:	
Florida	4
New York	8
Texas	24
Virginia	1
Undulant fever:	
California	17
Florida	1
Kansas	4
Louisiana	2
New York	23
Oklahoma [1]	1
Rhode Island	1
Tennessee	3
Texas	2
Washington	8
Wisconsin	8
Vincent's infection:	
Kansas	8
New York [2]	69
Oklahoma [1]	1
Oregon	5
Tennessee	6
Whooping cough:	
California	425
Florida	16
Kansas	150
Louisiana	12
Mississippi	232
Montana	131
New York	1,270
Oklahoma [1]	35
Oregon	80
Rhode Island	59
Tennessee	142
Texas	118
Virginia	52
Washington	49
Wisconsin	667

[1] Exclusive of Oklahoma City and Tulsa.
[2] Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended Oct. 19, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		1	0	1	0	0	0	0	15	30
New Hampshire:											
Concord	0		0	0	1	1	0	1	0	0	12
Manchester	0		1	0	0	0	0	2	0	0	10
Nashua	0			0		2	0		0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	3
Burlington	0		0	0	0	0	0	0	0	0	7
Rutland	0		0	0	0	0	0	0	0	2	10
Massachusetts:											
Boston	2		0	4	12	27	0	7	3	10	179
Fall River	0		0	1	4	4	0	1	0	6	35
Springfield	0		0	1	0	4	0	3	0	9	44
Worcester	1		0	1	5	15	0	1	0	1	59
Rhode Island:											
Pawtucket	0		0	0	0	1	0	0	0	0	13
Providence	0		0	0	4	1	0	1	0	[1] 13	64
Connecticut:											
Bridgeport	1	1	1	0	2	3	0	1	1	0	38
Hartford	0		0	0	2	2	0	1	0	7	36
New Haven	1		0	0	0	1	0	0	0	4	35
New York:											
Buffalo	0		0	7	20	35	0	3	0	21	150
New York	27	10	3	32	100	76	0	90	17	111	1,428
Rochester	1		0	1	2	4	0	0	0	3	59
Syracuse	0		0	0	3	4	0	0	0	1	45
New Jersey:											
Camden	0		0	0	2	3	0	1	1	1	39
Newark	0	3	0	1	12	15	0	6	1	32	111
Trenton	1		0	0	3	4	0	1	0	2	42
Pennsylvania:											
Philadelphia	3		0	7	18	57	0	19	5	53	412
Pittsburgh	3		0	5	20	54	0	10	1	42	171
Reading	2		0	1	2	2	0	0	0	0	23
Scranton	0			0		3	0		0	0	
Ohio:											
Cincinnati	7		0	2	3	13	0	6	0	10	124
Cleveland	11	15	1	1	8	28	0	12	2	44	155
Columbus	9		0	0	2	20	0	5	2	2	81
Toledo	1		0	0	6	7	0	2	0	3	59
Indiana:											
Anderson	0		0	0	0	1	0	2	0	1	12
Fort Wayne	11		0	0	5	8	0	0	0	0	21
Indianapolis	3		0	3	14	17	0	3	2	9	91
Muncie	0		0	3	2	2	0	0	0	0	8
South Bend	0		0	0	5	0	0	0	0	0	17
Terre Haute	0		0	0	0	1	0	0	0	0	22
Illinois:											
Alton	6		0	0	0	2	0	0	0	0	9
Chicago	7	5	0	9	32	101	0	35	1	76	633
Elgin	0		0	0	0	7	0	0	0	0	11
Moline	1		0	0	1	0	0	0	0	0	5
Springfield	1		0	0	2	1	0	0	0	1	24
Michigan:											
Detroit	7	3	0	3	17	32	0	16	1	112	255
Flint	1		0	0	4	15	0	1	0	2	36
Grand Rapids	0		0	0	1	5	0	0	0	4	32
Wisconsin:											
Kenosha	0		0	0	3	14	0	0	0	5	8
Milwaukee	0	1	1	1	7	28	0	5	0	73	90
Racine	1		0	1	0	27	0	0	0	12	8
Superior	0		0	0	0	1	0	1	0	0	6
Minnesota:											
Duluth	0		0	1	1	1	0	0	0	1	16
Minneapolis	10		0	5	9	55	0	1	1	8	94
St. Paul	0		0	0	7	21	0	1	0	5	61

[1] Including delayed reports.

City reports for week ended Oct. 19, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Iowa:											
Cedar Rapids	0	---	---	0	---	2	0	---	0	2	---
Davenport	0	---	---	0	---	1	0	---	0	0	---
Des Moines	0			0	---	5	0	---	---	1	33
Sioux City	1	---		0	---	3	0	---	0	2	---
Waterloo	9			0	---	7	0	---	0	0	---
Missouri:											
Kansas City	1	---	0	0	7	8	0	4	0	3	84
St. Joseph	3	---	0	0	2	1	0	1	0	0	27
St. Louis	21	3	3	2	4	43	0	8	0	2	210
North Dakota:											
Fargo	3		0	0	0	3	0	0	0	2	8
Grand Forks	0			0		0	0	---	0	0	---
Minot	0		0	0	0	1	0	0	0	1	3
South Dakota:											
Aberdeen	0	---		0	---	0	0	---	0	0	---
Nebraska:											
Omaha	13	---	0	0	2	15	0	1	0	0	54
Kansas:											
Lawrence	0	---	0	0	0	1	0	0	0	0	4
Topeka	0	---	0	0	2	3	0	0	0	1	13
Wichita	2	---	0	1	3	2	0	0	3	[illegible]	21
Delaware:											
Wilmington	1		0	0	3	0	0	1	1	1	28
Maryland:											
Baltimore	5	5	0	0	17	22	0	12	2	14	208
Cumberland	2		0	0	1	2	0	0	1	0	19
Frederick	0		0	0	0	1	0	0	0	0	1
District of Col.:											
Washington	6	1	1	0	7	14	0	9	2	2	190
Virginia:											
Lynchburg	1	---	0	0	0	1	0	0	0	0	9
Norfolk	0	---	0	0	7	1	0	0	0	0	35
Richmond	1	---	0	0	3	1	0	5	1	0	52
Roanoke	4	---	0	0	0	2	0	0	0	0	22
West Virginia:											
Charleston	3	---	0	0	0	8	0	0	0	0	9
Huntington	5	---	---	0	---	20	0	---	0	0	---
Wheeling	0	---	0	1	3	7	0	0	1	0	22
North Carolina:											
Gastonia	2	2	0	0	1	0	0	0	0	0	5
Raleigh	1	---	0	0	1	0	0	1	0	0	17
Wilmington	1	---	0	0	0	0	0	1	0	0	10
Winston-Salem	1	---	0	0	1	4	0	0	1	0	13
South Carolina:											
Charleston	1	14	0	0	1	2	0	2	0	0	23
Columbia	0	---	0	0	0	0	0	0	0	0	4
Florence	0	---	0	0	1	0	0	0	0	0	8
Greenville	1	---	0	0	0	1	0	0	0	0	3
Georgia:											
Atlanta	5	4	1	1	5	9	0	6	0	4	78
Brunswick	0	---	0	0	0	0	0	0	0	0	2
Savannah	3	---	0	1	2	4	0	1	0	1	30
Florida:											
Miami	4	2	0	1	2	0	0	2	0	1	26
Tampa	0	---	0	0	0	2	0	0	0	0	19
Kentucky:											
Ashland	3	0	---	0	---	1	0	---	0	0	---
Covington	3	0	---	0	2	7	0	0	0	1	13
Louisville	5	6	0	0	2	17	0	2	2	1	55
Tennessee:											
Knoxville	6	0	---	0	3	4	0	0	3	0	22
Memphis	1	---	2	0	5	8	0	6	0	2	83
Nashville	4	---	0	0	3	3	0	2	0	1	50
Alabama:											
Birmingham	2	4	0	0	4	3	0	1	0	0	60
Mobile	5	---	0	0	5	0	0	1	1	0	26
Montgomery	1	---	---	1	---	1	0	---	0	0	---
Arkansas:											
Fort Smith	2	---	---	0	---	3	0	---	0	0	---
Little Rock	0	---	0	1	5	2	0	1	0	0	6
Louisiana:											
Lake Charles	0	---	0	0	---	0	0	---	0	0	9
New Orleans	10	1	0	0	13	6	0	11	0	20	157
Shreveport	2	---	0	0	2	1	0	2	1	0	35

City reports for week ended Oct. 19, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Texas:											
Dallas	10	------	0	0	3	12	0	3	0	0	56
Fort Worth	10	------	0	------	1	9	0	1	1	------	38
Galveston	0	------	0	0	0	0	0	2	2	0	15
Houston	13	------	0	0	2	1	0	6	1	0	76
San Antonio	2	------	2	0	5	0	0	7	0	0	56
Montana:											
Billings	0	------	0	0	0	1	0	0	0	2	2
Great Falls	0	------	0	0	1	2	0	0	0	1	9
Helena	0	------	0	0	0	0	0	0	0	0	5
Missoula	0	------	0	0	1	24	0	0	0	0	5
Idaho:											
Boise	0	------	0	0	2	3	0	0	0	0	7
Colorado:											
Colorado Springs	0	------	1	0	1	6	0	2	0	1	14
Denver	2	------	1	2	4	16	0	4	0	0	75
Pueblo	0	------	0	2	0	13	0	0	0	1	13
New Mexico:											
Albuquerque	1	------	0	0	0	3	0	5	2	0	19
Utah:											
Salt Lake City	0	------	1	0	0	46	0	1	0	7	30
Nevada:											
Reno	0	------	0	0	0	1	0	0	0	0	2
Washington:											
Seattle	0	------	0	1	5	15	0	3	0	0	94
Spokane	0	------	0	2	5	5	3	0	0	0	24
Tacoma	------	------	------	4	------	2	------	------	------	------	------
Oregon:											
Portland	0	------	0	3	2	24	0	1	0	0	70
Salem	0	------	------	0	------	3	0	------	0	0	------
California:											
Los Angeles	16	21	0	5	8	22	1	19	6	8	264
Sacramento	5	------	0	1	1	9	0	1	------	9	22
San Francisco	0	2	0	30	7	5	0	6	1	22	179

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Maine:			
Portland	0	0	1
Massachusetts:			
Boston	1	1	13
Springfield	0	0	1
Worcester	0	0	4
Rhode Island:			
Providence	1	0	5
Connecticut:			
Hartford	0	0	4
New York:			
New York	10	3	39
New Jersey:			
Newark	0	0	2
Pennsylvania:			
Philadelphia	1	0	5
Pittsburgh	1	0	0
Ohio:			
Cincinnati	3	1	0
Columbus	0	1	0
Illinois:			
Chicago	2	1	1
Michigan:			
Detroit	1	1	1
Wisconsin:			
Kenosha	0	0	1
Milwaukee	0	0	1
Minnesota:			
Minneapolis	0	1	0
Missouri:			
St. Louis	3	1	1
South Dakota:			
Aberdeen	0	0	2
Maryland:			
Baltimore	2	1	2
District of Columbia:			
Washington	2	3	1
Virginia:			
Norfolk	[1] 2	0	0
Richmond	0	0	3
North Carolina:			
Raleigh	0	1	0
Kentucky:			
Louisville	0	0	6
Tennessee:			
Memphis	1	0	0
Nashville	0	3	1
Alabama:			
Birmingham	[1] 1	0	1
Louisiana:			
New Orleans	0	0	2
Shreveport	0	[1] 1	0
Texas:			
Dallas	1	1	0
Utah:			
Salt Lake City	0	0	1
Washington:			
Seattle	0	0	2
California:			
Los Angeles	0	0	6
Sacramento	1	0	0

[1] Imported.

Epidemic encephalitis.—Cases: Boston, 1; Newark, 1; Toledo, 1; Chicago, 1; Superior, 1.

Pellagra.—Cases: Washington, D. C., 1; Birmingham, 1; New Orleans, 1; Dallas, 1; Los Angeles, 3; San Francisco, 1.

Rabies in man.—Deaths: Raleigh, 1; Houston, 1.

Typhus fever.—Cases: Atlanta, 1; Montgomery, 1; New Orleans, 1; Houston, 3.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Two weeks ended October 5, 1935.—During the 2 weeks ended October 5, 1935, certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			1	4	2				1	8
Chicken pox				55	158	58	66	37	45	419
Diphtheria		3	8	25	14	16	5		2	73
Dysentery				13	3					16
Erysipelas				7	5	5		1	4	22
Influenza		15			12	3			38	68
Measles		4	69	117	248	2	30	6	186	662
Mumps		9			125	80	277	12	31	534
Paratyphoid fever	4	4			8				1	17
Pneumonia		3			12		1		6	22
Poliomyelitis					15	4	5	28	4	56
Scarlet fever	1	20	2	186	184	71	9	13	44	530
Smallpox							3		1	4
Trachoma						1	1		18	20
Tuberculosis	3	66	37	121	140	32	4	5	28	436
Typhoid fever	6	2	19	49	50	3	4	7	4	144
Undulant fever					3					3
Whooping cough		9	17	131	171	65	75	19	17	504

CZECHOSLOVAKIA

Communicable diseases—August 1935.—During the month of August 1935 certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	9		Paratyphoid fever	19	1
Cerebrospinal meningitis	7	5	Poliomyelitis	33	2
Chicken pox	22		Puerperal fever	35	12
Diphtheria	1,529	97	Scarlet fever	1,404	20
Dysentery	235	17	Trachoma	114	
Influenza	42	6	Typhoid fever	563	52
Lethargic encephalitis	2	1	Typhus fever	3	
Malaria	558				

PANAMA CANAL ZONE

Communicable diseases—July–September 1935. —During the months of July, August, and September 1935, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows

Disease	July		August		September	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chicken pox	1				4	
Diphtheria	9	1	17	2	14	1
Dysentery (amoebic)	26	1	3		32	2
Dysentery (bacillary)	[illegible]	1	1			
Leprosy	2			1		
Lethargic encephalitis			1			
Malaria	191	3	84	6	107	1
Measles	1				1	
Meningococcus meningitis	1		1	1	1	1
Mumps	2					
Paratyphoid fever			1			
Pneumonia		19		17		10
Poliomyelitis			1		1	
Tuberculosis		27		2[illegible]		30
Typhoid fever	3		4	1	6	
Typhus fever	1					
Whooping cough	10		[illegible]		3	

VIRGIN ISLANDS

Notifiable diseases—July–September 1935. —During the months of July, August, and September 1935, cases of certain notifiable diseases were reported in the Virgin Islands as follows

Disease	July	August	September	Disease	July	August	September
Chicken pox	1	1		Malaria	2	3	2
Filariasis	6	3	4	Poliomyelitis	1	1	
Fish poisoning	2			Syphilis	21	11	3
Gonorrhea	2	9	11	Tuberculosis	2	3	
Hookworm disease	2	2	2				

YUGOSLAVIA

Communicable diseases—September 1935. —During the month of September 1935 certain communicable diseases were reported in Yugoslavia as follows

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	121	6	Poliomyelitis	4	
Cerebrospinal meningitis	7	3	Scarlet fever	149	5
Diphtheria and croup	607	61	Sepsis	2	1
Dysentery	705	79	Tetanus	[illegible]7	18
Erysipelas	231	5	Typhoid fever	706	6[illegible]
Measles	63	1	Typhus fever	11	
Paratyphoid fever	47	1			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for October 25, 1935, pages 1512–1526. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued November 29, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Hawaii Territory—Hawaii Island—Hamakua District—Paauhau Sector.—A rat which was found October 14, 1935, in Paauhau Sector, Hamakua District, Island of Hawaii, has been proved positive for plague. The rat was found in the course of plague eradicative work.

Yellow Fever

Gold Coast.—Yellow fever has been reported in Gold Coast as follows: On October 6, 1935, 3 cases at Bawku; September 21, 1935, 1 case and 1 death at Tamale.

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 NOVEMBER 15, 1935 NO. 46

SICKNESS AMONG MALE INDUSTRIAL EMPLOYEES DURING THE SECOND QUARTER AND THE FIRST HALF OF 1935 [1]

By DEAN K. BRUNDAGE, *Statistician, Office of Industrial Hygiene and Sanitation, United States Public Health Service*

One has to go back to the fourth quarter of 1932 to find an increase in the frequency of sickness and nonindustrial accidents as large as that which occurred in the second quarter of 1935 in comparison with the corresponding quarter of the preceding year. Cases causing disability for more than 1 week occurred 17 percent oftener than in the second quarter of 1934. After 2 years of below-average sickness incidence rates, the frequency of disability in the second quarter of 1935 increased to a figure approximately the same as the average rate for this period of the 5 preceding y rs.

In the first 3 months of 1935 only a slight increase in sickness frequency occurred over that recorded for the same months of 1934. The fairly sharp rise in the second 3 months of 1935 brought the rate for the half year to a level 13 percent above the corresponding rate for the same period of 1934.

These findings emerged from an analysis of reports from a group of 33 corporations having sick-benefit organizations covering approximately 158,000 male industrial workers in the periods under consideration.

There was very little change in the frequency of nonindustrial accidents in the second quarter and in the first half of 1935 as compared with the corresponding periods of the preceding year. The increase was due to a greater frequency of cases of disabling sickness as distinguished from injuries of nonindustrial origin.

In the second quarter of 1935 the frequency of disability from respiratory diseases exceeded the average rate for such illnesses during the 5 years 1930 to 1934, inclusive. The average rate was exceeded in each of the respiratory-disease categories shown in table 1 with the exception of respiratory tuberculosis, which occurred at average frequency in the second quarter of 1935. For the 6 months as a whole, each numerically important respiratory disease,

[1] The report for the first quarter of 1935 was published in the Public Health Reports for Aug. 23, 1935, vol 50, no 34, pp 1125-1127.

tuberculosis included, occurred oftener than in the first half of 1934. Influenza, which was recorded at less than average frequency in the first 3 months of 1935, was found to have greater than average incidence in the second quarter among the industrial employees covered by the reporting organizations. The influenza-mortality rate likewise increased sharply, but the mortality from this disease in 1935 was considerably below the average for influenza during the winter and spring seasons.[2] This result suggests that the influenza-fatality rate (percentage of cases terminating fatally) may have been unusually low during the first half of 1935. The rise in the influenza-morbidity rate was accompanied by an increase in the frequency of pneumonia among the industrial workers under consideration. The mortality from pneumonia, however, as reported by the Metropolitan Life Insurance Co., differed little from that in the first half of 1934.[3]

For nonrespiratory diseases as a whole the rate was 10 percent higher in the second quarter, and 3 percent higher in the first half than in the corresponding periods of the preceding year. There was practically no change in the frequency of digestive diseases. The rise in nonrespiratory diseases was due to a combination of small increases in the rate for the rheumatic group of diseases, neurasthenia, diseases of the heart and arteries, and diseases of the genitourinary system and annexa. The rate for diseases of the skin remained virtually unchanged from the low incidence to which this group of diseases has declined during the past few years.

Although the sickness experience of the group of male industrial workers under consideration was not so favorable as in the corresponding periods of 1934, no disease group, with the exception of epidemic and endemic diseases, occurred at a rate which was appreciably above its 5-year average. The downward trend in sickness frequency which has been manifested during the past 5 or 6 years, however, may have reached its nadir, at least for the time being. Progressive increase in the proportion of workers employed on a full-time basis may result in slightly higher sickness rates on account of increased exposure to occupational health hazards. That a relationship exists between the health of industrial workers and the rate of business activity seems apparent from the changes which have occurred in sickness frequency among industrial employees from 1921 to date.

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[2] Statistical Bulletin, Metropolitan Life Insurance Co, vol 16, no 7, July 1935, p 5.
[3] Ibid, p 7

TABLE 1.—*Frequency of disability lasting 8 calendar days or longer in the second quarter of 1935, compared with the same quarter of preceding years, and in the first half of 1935 as compared with the corresponding period of 1934. (Male morbidity experience of industrial companies which reported their cases to the U. S. Public Health Service)*[1]

Diseases and disease groups which caused disability. (Numbers in parentheses are disease title numbers from the International List of the Causes of Death, fourth revision, Paris, 1929)	Annual number of disabilities per 1,000 men				
	Second quarter of—			First half of—	
	1935	1934	Five years, 1930–34	1935	1934
Sickness and nonindustrial injuries [2]	85.2	72.8	84.9	92.9	82.4
Nonindustrial injuries	9.5	9.6	11.1	9.9	10.6
Sickness [2]	75.7	63.2	73.8	83.0	71.8
Respiratory diseases	29.1	20.9	25.4	37.9	28.2
Bronchitis, acute and chronic (106)	3.8	2.5	3.0	4.2	3.6
Diseases of the pharynx and tonsils (115a)	6.5	5.2	5.6	5.8	4.8
Influenza, grippe (11)	11.1	7.2	9.9	19.0	12.2
Pneumonia, all forms (107–109)	2.4	1.9	2.0	3.1	2.4
Tuberculosis of the respiratory system (23)	1.1	.8	1.1	1.0	.8
Other respiratory diseases (104, 105, 110–114)	4.2	3.3	3.8	4.8	4.4
Nonrespiratory diseases	46.6	42.3	48.4	45.1	43.6
Diseases of the stomach, cancer excepted (117–118)	3.1	3.2	3.9	3.3	3.3
Diarrhea and enteritis (120)	.8	1.1	1.1	.9	1.0
Appendicitis (121)	4.2	4.1	4.0	3.9	4.0
Hernia (122a)	1.4	1.6	1.6	1.4	1.5
Other digestive diseases (115b, 116, 122b–129)	3.0	2.7	3.0	3.0	2.8
Rheumatic group, total	9.9	8.9	10.9	9.8	9.4
Rheumatism, acute and chronic (56, 57)	4.9	4.3	5.8	4.6	4.6
Diseases of the organs of locomotion (156b)	2.5	2.8	3.1	2.7	2.9
Neuralgia, neuritis, sciatica (87a)	2.5	1.8	2.0	2.5	1.9
Neurasthenia and the like (part of 87b)	1.4	1.1	1.3	1.1	.8
Other diseases of the nervous system (78–85, part of 87b)	1.2	1.4	1.3	1.2	1.5
Diseases of the heart and arteries, and nephritis (90–99, 102, 130–132)	3.7	3.2	4.1	3.8	3.5
Other genito-urinary diseases (133–138)	2.9	2.3	2.4	2.7	2.5
Diseases of the skin (151–153)	2.3	2.2	2.8	2.3	2.3
Epidemic and endemic diseases, except influenza (1–10, 12–18, 33, 37, 38, part of 39 and 44)	4.0	2.5	2.8	3.3	3.2
Ill-defined and unknown causes (200)	2.1	1.7	1.8	2.0	1.8
All other diseases (19–22, 24–32, part of 39 and 44, 40–43, 45–55, 58–77, 88, 89, 100, 101, 103, 154–156a, 157, 162)	6.6	6.3	7.4	6.4	6.0
Average number of males covered in the record	158,959	158,875	150,777	158,310	152,302
Number of companies included	33	33	36	33	33

[1] In 1934 and 1935 the same companies are included. The rates for the second quarter of the years 1930–34 include 19 of these companies which employed an average of 120,666 men during these months, or 80 percent of the 150,777 men representing the sample population for the 5 years.
[2] Exclusive of disability from the venereal diseases and a few numerically unimportant causes of disability.

The comparison of rates in 1935 with those in 1934 is based on the reports of identical companies, and the 5-year averages are based on the experience of almost the same employee groups. The number of companies included may be insufficient to afford an adequate sample of the sickness experience of industrial workers in the country as a whole, although the reporting companies employ persons in nearly all parts of the country. A majority of the workers included in the record are located north of the Ohio River and east of the Mississippi

River. The illnesses reported are those for which sick benefits are paid (for cases causing disability lasting longer than 1 week) from funds to which payments are made by the employee, by the employer, or by both.

PHYSICAL CONDITION AND UNEMPLOYMENT[1]

By Harold S. Diehl, M. A., M. D., *Director, Students' Health Service, University of Minnesota, Minneapolis, Minn.*

Over a period of 3 years the Employment Stabilization Research Institute of the University of Minnesota conducted physical, psychological, and sociological examinations of large numbers of employed and unemployed persons in Minneapolis, St. Paul, and Duluth. Several published studies have presented analyses of personality profiles, employment records, skills, and mental capacities of these groups.[2]

Although the physical condition of these unemployed individuals was rarely, if ever, considered when they lost their jobs, the great prevalence of physical defects among them led us to raise the question as to a possible relationship between physical handicaps and unemployment. Such a relationship, if existent, might be because physical handicaps reduce efficiency and thereby contribute to unemployment; or because lack of employment predisposes to certain physical defects and makes it impossible to have others corrected; or because the individual who neglects physical defects is likely to be careless and inefficient in other things.

In order to investigate a possible relationship between physical condition and employment status the physical examination records of individuals in the following four broad occupational groups were analyzed: Professional workers and business officials, clerical workers, skilled workers, and semiskilled workers. Each of these groups was then further divided into three subgroups according to employment status, viz, those who were unemployed early in the depression, i. e., before January 1, 1931; those who became unemployed late in the depression, i. e., after January 1, 1931; and those who were employed at the time of the examination. The first group probably could be considered more or less chronically unemployed. The details of the examination procedure, the record forms used, and similar matters have been discussed in an earlier publication.[3]

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[1] From the Employment Stabilization Research Institute and the Department of Preventive Medicine and Public Health, University of Minnesota, Minneapolis, Minn.

[2] Bulletins of the Employment Stabilization Research Institute, University of Minnesota Press, Minneapolis, Minn., 1932-34.

[3] Hansen, Alvin, Trabue, Warren R., and Diehl, Harold S. The Duluth casual labor group. Bulletins of the Employment Stabilization Research Institute, vol. 1, no. 3, 1932.

Each physical examination record was then classified for the purpose of this study as showing (1) physical defects likely to reduce efficiency, (2) physical defects which might impair efficiency, or (3) no physical defects, handicaps, or diseases likely to affect efficiency. These classifications represent a physician's opinion as to the possible or probable influence of each individual's physical condition upon efficiency in his or her particular occupation. The physician who made these classifications had no information concerning the employment status of the individuals whose records he was classifying. Table 2 presents the frequencies with which these several physical classifications occur among the early-depression unemployed, the late-depression unemployed, and the employed groups of each occupational class. First, the classifications for all ages taken together were tabulated; and then, because age may affect employment, similar tabulations were made for the age group 25 to 44 years separately.

The relationship of individual physical defects and diseases to employment status is shown by table 3, which gives the frequencies in percentages of the various physical defects among the early-depression unemployed, the late-depression unemployed, and the employed groups in each occupational class. The numbers of individuals in the various groups and subgroups are shown in table 2.

AGE

The one consistent age difference between these several employment groups, small and statistically insignificant though it is in most cases, is that the late-depression unemployed group is slightly younger than either the early-depression unemployed or the employed groups (table 1). This suggests that the first reduction in employment was not based upon a consideration in which age would be involved, but that later in the depression there was a tendency to drop the younger employees, possibly because they had less financial and family responsibility than the older ones. Among the skilled workmen and among both men and women of the so-called professional and business official class the early-depression unemployed groups show a greater average age than either the late-depression unemployed or the employed groups in these occupational classes. However, this is associated with a greater average age for these occupational groups as a whole than for clerical and semiskilled workers.

HEIGHT AND WEIGHT

There are no significant differences in the heights of the employment groups of either men or women in any of the occupational classifications (table 1).

TABLE 1.—*Age, height, and weight*

Occupational group[1]	Men			Women		
	Early-depression unemployed	Late-depression unemployed	Employed	Early-depression unemployed	Late-depression unemployed	Employed
Mean age and probable error in years:[2]						
Professional and business	40.6±1.4	35.8±0.9	37.6±0.6	36.6±1.4	30.7±0.8	30.1±0.9
Clerical	32.7± .7	29.7± .5	33.5± .6	29.6± .6	27.2± .5	28.3± .4
Skilled	42.0± .6	38.5± .5	39.5± .8	----------	----------	----------
Semiskilled	33.1± .8	30.3± .6	35.5±1.0	----------	----------	----------
Mean height and probable error in inches.[3]						
Professional and business	68.6± .3	69.0± .2	69.2± .2	64.6± .5	64.8± .5	64.3± .3
Clerical	68.9± .1	69.0± .3	68.9± .1	65.0± .2	65.0± .2	65.5± .1
Skilled	68.2± .1	68.4± .1	68.5± .2	----------	----------	----------
Semiskilled	68.5± .2	68.9± .2	69.2± .3	----------	----------	----------
Mean weight and probable error in pounds:[3]						
Professional and business	154.9±2.6	154.9±1.6	164.6±1.6	134.0±3.5	133.7±3.4	130.8±3.4
Clerical	145.6±1.0	150.7±1.2	154.6±1.1	130.0±2.1	127.2±1.5	128.1± .9
Skilled	160.3±1.2	158.8±1.2	163.5±1.6	----------	----------	----------
Semiskilled	151.4±1.4	155.0±1.3	156.5±2.2	----------	----------	----------

[1] For number of cases in the various groups see table 2.
[2] Age in years to nearest birthday.
[3] Measurements include shoes and ordinary clothing.

The average weight of employed men is greater than the average weight of early-depression unemployed or late-depression unemployed men in each occupational classification, a difference which probably is a result of unemployment. This is in marked contrast to the situation with the women, among whom there is no significant difference in the average weights of the several employment groups.

PHYSICAL CLASSIFICATIONS

The proportion of individuals with physical defects considered likely to reduce efficiency is from two to four times as great among the early-depression unemployed groups, for all ages combined, as among the employed groups in the same occupational classifications. This frequency of physical handicaps is definitely and consistently greater among the early-depression unemployed than among either of the other employment groups. This holds true for each occupational class, for both men and women, and for the 25- to 44-year-old group as well as for all ages combined. Likewise, the proportion of individuals with no physical defects considered likely to affect efficiency is consistently lowest among these same early-depression unemployed groups (table 2).

TABLE 2.—*Physical classifications*

ALL AGES

Occupational group	Men: Early-depression unemployed	Men: Late-depression unemployed	Men: Employed	Women: Early-depression unemployed	Women: Late-depression unemployed	Women: Employed
Number of cases:						
Professional and business	35	71	91	19	19	37
Clerical	144	131	149	69	85	269
Skilled	174	265	98			
Semiskilled	92	112	61			
Physical defects likely to reduce efficiency:						
Professional and business ... percent	25.7	11.3	9.9	26.3	5.3	10.8
Clerical ... do	24.3	11.4	12.7	21.7	10.6	9.3
Skilled ... do	25.9	22.3	10.4			
Semiskilled ... do	14.1	6.2	3.3			
Physical defects which might reduce efficiency:						
Professional and business ... percent	45.7	39.4	39.5	36.8	36.8	32.4
Clerical ... do	29.9	25.2	21.5	46.4	34.1	28.6
Skilled ... do	36.7	30.0	37.5			
Semiskilled ... do	27.2	27.7	26.2			
No physical defects likely to affect efficiency:						
Professional and business ... percent	28.6	49.3	50.6	36.8	57.9	56.8
Clerical ... do	45.8	63.4	65.8	31.9	55.3	62.1
Skilled ... do	37.4	47.7	52.1			
Semiskilled ... do	58.7	66.1	70.5			

AGES 25 TO 44 YEARS, INCLUSIVE

Occupational group	Men: Early-depression unemployed	Men: Late-depression unemployed	Men: Employed	Women: Early-depression unemployed	Women: Late-depression unemployed	Women: Employed
Number of cases:						
Professional and business	19	48	67	13	16	25
Clerical	48	70	106	40	46	135
Skilled	64	89	69			
Semiskilled	52	60	39			
Physical defects likely to reduce efficiency:						
Professional and business ... percent	21.0	6.2	9.0	30.8	6.3	16.0
Clerical ... do	25.0	14.3	10.4	22.5	10.9	11.1
Skilled ... do	19.1	19.6	4.4			
Semiskilled ... do	11.5	5.0	0.0			
Physical defects which might reduce efficiency:						
Professional and business ... percent	42.1	41.7	34.3	38.5	43.8	36.0
Clerical ... do	29.2	18.6	19.8	50.0	39.1	30.4
Skilled ... do	33.7	26.4	36.2			
Semiskilled ... do	21.2	30.0	28.2			
No physical defects likely to affect efficiency:						
Professional and business ... percent	36.9	52.1	56.7	30.8	50.0	48.0
Clerical ... do	45.8	67.1	69.8	27.5	50.0	58.5
Skilled ... do	47.2	54.0	59.4			
Semiskilled ... do	67.3	65.0	71.8			

The late-depression unemployed groups show frequencies of physical handicaps intermediate between the early-depression unemployed and the employed groups; but the physical classifications of the late-depression unemployed group are much more nearly like the classifications of the employed groups than those of the early-depression unemployed. This suggests that late in the depression factors other than ability were given first consideration in the selection of persons to be discharged.

SPECIFIC PHYSICAL DEFECTS AND DISEASES

The frequencies of the more common physical defects reported are shown in table 3. From this table it appears that in practically every case in which there is a significant difference between the groups, the prevalence of defects is greatest in the early-depression unemployed groups and least in the employed groups.

TABLE 3.—*Physical findings*

Occupational group [1]	Men: Early-depression unemployed	Men: Late-depression unemployed	Men: Employed	Women: Early-depression unemployed	Women: Late-depression unemployed	Women: Employed
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Underweight, 10 percent or more: [2]						
Professional and business	[3] 28.6	[3] 23.0	[3] 9.0	37.1	[3] [illegible]	[3] 38.9
Clerical	[3] 32.8	[3] 20.0	[3] 19.0	[3] 37.5	38.1	[3] 32.2
Skilled	[3] 19.9	[3] 17.2	[3] 15.3			
Semiskilled	[3] 18.8	17.5	16.1			
Overweight, 20 percent or more: [2]						
Professional and business	[3] 3.6	[3] 7.7	[3] 7.9	15.8	[3] 5.6	[3] 8.1
Clerical	[3] 1.5	[3] 3.1	4.8	[3] 15.6	[3] 6.0	[3] 6.5
Skilled	[3] 12.1	[3] 9.8	[3] 11.3			
Semiskilled	[3] 5.9	7.0	11.3			
Visual defects, total (20/30 or worse in one or both eyes uncorrected or corrected to): [4]						
Professional and business	60.0	27.8	28.6	47.7	5.3	13.5
Clerical	49.3	32.1	27.7	58.8	25.0	20.1
Skilled	49.4	42.2	35.5			
Semiskilled	39.1	29.8	19.4			
Visual defects, high grade (20/40 or worse in one or both eyes uncorrected or corrected to): [4]						
Professional and business	22.9	15.5	13.2	5.3	5.3	2.7
Clerical	25.0	16.0	12.2	22.1	10.7	11.2
Skilled	22.7	19.8	23.9			
Semiskilled	13.0	15.8	11.3			
Color blindness: [5]						
Professional and business	2.9	4.2	6.6	0	0	0
Clerical	3.5	8 4	7.4	1.5	0	0.4
Skilled	5.8	4.3	7.6			
Semiskilled	2.2	3.5	11.3			
Hearing loss, total (10 percent or more in one or both ears): [6]						
Professional and business	25.8	5.5	3.3	5.3	5.3	5.4
Clerical	10.4	6.1	1.4	10.3	2.4	.7
Skilled	21.5	14.3	7.6			
Semiskilled	9.8	7.9	6.5			
Hearing loss, high grade (20 percent or more in one ear, 10 percent or more in other ear): [6]						
Professional and business	5.7	0	2.2	5.3	5.3	2.7
Clerical	3.5	1.5	0	1.5	0	.4
Skilled	7.6	3.5	0			
Semiskilled	3.3	.9	1.6			
Cerumen, impacted:						
Professional and business	5.7	8.4	6.6	10.5	5.3	8.1
Clerical	9.7	9.2	10.8	10.3	6.0	6.3
Skilled	10.5	13.2	16.1			
Semiskilled	7.6	8.8	21.0			
Ear defects, other: [7]						
Professional and business	2.7	6.9	0	0	5.3	2.7
Clerical	2.1	3.8	5.4	1.5	1.2	2.2
Skilled	2.8	2.7	6.5			
Semiskilled	2.2	.9	3.2			
Dental caries, total: [8]						
Professional and business	[3] 36.4	[3] 23.5	[3] 11.9	[3] 13.3	[3] 11.1	[3] 6.1
Clerical	[3] 44.9	[3] 26.4	[3] 17.7	[3] 14.8	[3] 4.0	[3] 6.9
Skilled	[3] 52.9	[3] 40.4	[3] 25.9			
Semiskilled	[3] 43.1	[3] 30.4	[3] 39.6			

See footnotes at end of table.

TABLE 3.—*Physical findings*—Continued

Occupational group [1]	Men: Early-depression unemployed	Men: Late-depression unemployed	Men: Employed	Women: Early-depression unemployed	Women: Late-depression unemployed	Women: Employed
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Dental caries of advanced grade: [8]						
Professional and business	0	[3] 3.9	[3] 1.5	0	0	0
Clerical	[3] 9.3	[3] 2.8	[3] 1.5	[3] 1.6	[3] 1.3	0
Skilled	[3] 13.6	[3] 7.5	[3] 5.2			
Semiskilled	[3] 6.2	[3] 6.5	[3] 5.7			
Dental plates:						
Professional and business	8.6	5.6	0	5.3	0	0
Clerical	3.5	3.1	4.1	1.5	0	1.1
Skilled	9.9	4.3	14.0			
Semiskilled	4.3	0	3.2			
Gingivitis and pyorrhea:						
Professional and business	[3] 23.8	[3] 12.0	[3] 14.7	[3] 13.3	0	5.4
Clerical	[3] 23.9	[3] 13.6	[3] 10.1	[3] 5.0	[3] 5.5	[3] 3.4
Skilled	[3] 29.6	[3] 24.6	[3] 23.4			
Semiskilled	[3] 27.7	[3] 17.6	[3] 18.9			
Nasal obstruction: [9]						
Professional and business	8.6	18.3	11.0	15.8	15.8	10.8
Clerical	14.6	16.0	14.2	7.4	3.6	3.3
Skilled	12.8	12.0	17.2			
Semiskilled	17.4	11.4	12.9			
Goiter, simple:						
Professional and business	2.9	2.8	2.2	15.8	0	8.1
Clerical	3.5	3.1	4.1	17.6	11.9	12.6
Skilled	.6	.8	1.1			
Semiskilled	2.2	.9	3.2			
Upper respiratory tract diseases: [10]						
Professional and business	5.7	8.4	8.8	15.8	10.5	5.4
Clerical	10.4	11.5	8.1	10.3	8.3	2.6
Skilled	18.0	7.4	6.5			
Semiskilled	14.1	8.8	1.6			
Lower respiratory tract diseases: [11]						
Professional and business	5.7	1.4	4.4	5.3	5.3	5.4
Clerical	2.1	0	1.4	0	2.4	1.1
Skilled	4.7	3.5	0			
Semiskilled	3.3	0	0			
Suspicious chest findings or tuberculosis: [12]						
Professional and business	5.7	0	3.3	15.8	0	5.4
Clerical	3.5	.8	.7	2.9	0	.4
Skilled	4.7	1.5	0			
Semiskilled	5.4	0	0			
Cardiac abnormalities: [13]						
Professional and business	8.6	2.8	7.7	0	5.3	2.7
Clerical	10.4	3.1	4.1	2.9	4.8	5.9
Skilled	6.4	5	8.6			
Semiskilled	5.4	7	3.2			
Pulse rates 90 or more:						
Professional and business	8.6	9.8	4.4	5.3	5.3	11.1
Clerical	[3] 14.7	14.5	[3] 12.1	[3] 26.1	[3] 22.3	24.5
Skilled	[3] 13.8	[3] 8.5	[3] 12.5			
Semiskilled	[3] 11	13.2	21			
Pulse rates less than 60:						
Professional and business	2.9	1.4	4.4	10.6	0	0
Clerical	[3] 1.4	6.9	[3] 1.3	0	[3] 1.2	.4
Skilled	[3] 10.3	[3] 7.7	[3] 4.2			
Semiskilled	[3] 7.7	3.5	3.2			
Blood pressure 140–159 mm:						
Professional and business	[3] 25.7	[3] 7	12	10.5	0	8.1
Clerical	13.9	8.4	[3] 6	[3] 13	[3] 1.2	6.3
Skilled	[3] 18.4	[3] 12.5	[3] 20.4			
Semiskilled	14.1	12.3	17.7			
Blood pressure 160 mm or more:						
Professional and business	2.9	[3] 2.8	2.2	0	0	2.7
Clerical	4.2	1.5	[3] 4	[3] 2.9	0	1.1
Skilled	[3] 6.5	[3] 3.1	[3] 7.9			
Semiskilled	2.2	.9	1.6			
Blood vessels, abnormalities of: [14]						
Professional and business	0	11.3	8.8	0	0	5.4
Clerical	2.8	6.1	4.7	2.9	0	0
Skilled	11	9.6	16.1			
Semiskilled	5.4	3.5	6.5			
Abdominal disorders: [15]						
Professional and business	2.9	9.8	9.9	5.3	5.3	5.4
Clerical	4.9	1.5	3.4	2.0	8.3	7.4
Skilled	4.7	4.3	2.2			
Semiskilled	4.4	1.8	0			

See footnotes at end of table.

TABLE 3.—*Physical findings*—Continued

Occupational group [1]	Men: Early-depression unemployed	Men: Late-depression unemployed	Men: Employed	Women: Early-depression unemployed	Women: Late-depression unemployed	Women: Employed
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Hernias:						
Professional and business	5.7	4.2	1.1	0	0	0
Clerical	2.1	3.1	2	0	0	.4
Skilled	6.4	5.8	5.4			
Semiskilled	4.4	.9	8.1			
Genito-urinary system, diseases of:						
Professional and business	8.6	8.4	3.3	5.3	0	0
Clerical	4.2	1.5	6.7	4.4	0	0
Skilled	6.4	3.5	3.2			
Semiskilled	1.1	1.8	4.8			
Menstrual function, disorders of: [16]						
Professional and business				5.3	5.3	16.2
Clerical				17.6	2.4	8.9
Skilled						
Semiskilled						
Albuminuria or nephritis:						
Professional and business	0	5.6	1.1	0	0	5.4
Clerical	4.2	.8	0	7.4	1.2	1.5
Skilled	4.1	4.3	0			
Semiskilled	1.1	4.4	4.8			
Glycosuria or diabetes:						
Professional and business	2.9	2.8	2.2	0	0	0
Clerical	.7	2.3	2.7	1.5	2.4	.7
Skilled	5.2	1.2	2.2			
Semiskilled	0	2.6	4.8			
Syphilis: [17]						
Professional and business	2.9	1.4	1.1	0	0	0
Clerical	.7	0	.7	1.5	0	0
Skilled	5.2	2.3	1.1			
Semiskilled	2.2	1.8	1.6			
Skin diseases:						
Professional and business	5.7	5.6	4.4	0	0	0
Clerical	6.9	9.9	3.4	7.4	3.6	4.8
Skilled	4.1	2.3	6.5			
Semiskilled	8.7	6.1	1.6			
Mental or nervous conditions: [18]						
Professional and business	2.9	4.2	4.4	10.6	0	2.7
Clerical	10.4	.8	2.0	14.7	6.0	2.6
Skilled	6.4	4.6	1.1			
Semiskilled	2.2	.3	1.6			
Locomotor system, abnormalities of:						
Professional and business	25.8	15.5	14.3	15.9	15.8	10.8
Clerical	19.4	9.2	6.7	23.5	4.8	8.6
Skilled	19.2	14.3	18.3			
Semiskilled	19.6	14.0	9.7			

[1] For number of cases in the various groups see table 2.
[2] In relation to averages for age and height given in the medico-actuarial tables.
[3] In tabulating the data some of the items were rejected from consideration for various reasons. In each case, percentages were derived for the particular number of items remaining under each category after the elimination of rejected items.
[4] Visual defects as indicated by the Snellen test. If the subject used glasses, they were worn during test.
[5] Partial and complete as indicated by the Ishihara test cards.
[6] Some examinations were done with the 3A Western Electric audiometer; others with the watch test.
[7] Includes chronic otitis media, thickened ear drum, perforated ear drum, etc.
[8] Examinations of teeth were made only by physicians; hence the prevalence of caries reported is lower than actually exists. Differences between groups, however, are dependable.
[9] Indicates partial or complete nasal obstruction caused by deviated septa, septal spurs, hypertrophied turbinates, etc.
[10] Includes diagnoses of sinusitis, nasal polyps, septic tonsils, hypertrophied tonsils, tonsil tags, chronic rhinitis, hay fever, etc.
[11] Tuberculosis and suspected tuberculosis not included.
[12] Includes definite diagnoses of tuberculosis and cases in which the physical findings or physical findings and the history together were sufficiently suggestive of tuberculosis for the examining physician to advise an X-ray of the chest.
[13] Includes endocarditis, arrythmias, chronic myocarditis, etc.
[14] Includes varicose veins, hemorrhoids, and arteriosclerosis.
[15] Includes gastric distress, gastric ulcer, duodenal ulcer, cholecystitis, chronic appendicitis, chronic constipation, possible cancer, etc.
[16] Includes dysmenorrhea, amenorrhea, metorrhagia, and menorrhagia.
[17] Diagnosis based upon a positive Wassermann test, or history with physical findings of syphilis or upon both.
[18] Includes nervousness, tics, delusions, tremors, strokes, post-encephalitis, paresis, epilepsy, migraine, nervous fatigue, hypochondriasis, hysteria, insomnia, high-strung nervous type, speech difficulties, etc.

Underweight of 10 percent or more is distinctly more prevalent among the early-depression unemployed men than among the employed men of the professional and business official and clerical groups; but there is no significant difference between the prevalence of underweight among the women of these groups or among the men of the other occupational groups. Overweight of 20 percent or more among the men is most prevalent in the employed group, but among the women is distinctly more prevalent among the early-depression unemployed than among either of the other groups. This suggests that for women overweight constitutes a distinct handicap in obtaining and holding employment.

The specific physical defects and diseases which bear the most definite relationship to the employment status in all or most occupational groups are defective vision, impairment of hearing, dental caries, gingivitis and pyorrhea, abnormalities of the locomotor system, and suspicious chest findings. In addition, diseases of the respiratory tract, nervous and mental disturbances, syphilis, etc., are of greater prevalence among the early unemployed than among the employed of one or more occupational groups. Dysmenorrhea is distinctly more prevalent among unemployed than among employed clerical women, but the reverse is true among the small group of women in the professional worker and business official class.

SUMMARY AND COMMENT

In general, the occurrence of physical handicaps or defects is greater among the unemployed than among the employed groups of each occupational class, and greater among the early-depression unemployed than among the late-depression unemployed. This condition obtains in spite of the fact that the occurrence of defects among the employed is relatively high and that an individual's physical condition was not determined, and in most instances probably not even considered, when he or she was employed or discharged. However, most employers would prefer to drop first the least efficient of their employees. Hence, although no special method for determining efficiency was utilized, it is probable that the early-depression unemployed group, in which the occurrence of physical handicaps is consistently highest, contains a relatively large proportion of the less efficient individuals. This would seem to indicate that the individual with physical handicaps is more likely to become unemployed than the one who is in better physical condition.

The reasons that such physical defects as impaired hearing, defective vision, syphilis, diabetes, diseases of the respiratory system, of the heart, etc., might be related to employment are too apparent to need comment. Other conditions, such as dental caries and pyorrhea,

may be related to employment status because they reflect a general attitude of carelessness, because they impair efficiency, because they have developed as a result of unemployment, or because they are part of a vicious cycle involving several of these factors. Although underweight of extreme grade, particularly in young persons, tends to be associated with lowered physical efficiency, its relationship to unemployment is more likely to be on the basis of effect than of cause.

The reason for the apparent relationship between employment status and blood pressure or pulse rate which appears in certain of the occupational groups is not entirely clear from the physiological point of view. The individual with high blood pressure is frequently pictured as a determined, energetic worker; in fact, Moschowitz,[4] in a paper on hypertension, speaks of "the tragedy of the successful man." On the other hand, high blood pressure is likewise found in "hobos" and ne'er-do-wells. We know also that persistent hypertension eventually leads to cardiovascular deterioration and failure. Slow pulse rates may indicate a phlegmatic temperament and rapid rates a nervous disposition, but either may be produced by disease. Both blood pressure and pulse rates, however, are so variable and so susceptible of influence by many factors that a single reading of either has but little diagnostic value in a study such as this.

Finally, a study of the table of physical findings cannot fail to impress one with the great possibility of increasing individual health, efficiency, and happiness by the prevention or correction of physical handicaps in the employed as well as the unemployed groups. Defective vision can usually be corrected by glasses; certain types of deafness are amenable to treatment, and the handicap due to progressive deafness usually can be overcome; dental caries can be prevented or arrested; pyorrhea can be prevented or cured; syphilis can be cured if diagnosed and treated early; and many similar corrections can be made.

Although it is difficult to generalize from the findings in such diverse occupational groups as the subjects of this study, the data seem to justify the following statements: (1) That individuals who are in good health and who keep themselves as free as possible from physical handicaps are less likely to suffer unemployment than individuals who are handicapped by physical defects; and (2) that employers could expect greater efficiency from their employees if provisions were made to discover and correct their physical handicaps and to keep them in better general health.

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[4] Moschowitz, Eli. Cause of hypertension of the greater circulation. Jour. Am Med. Assoc., 93.347 (Aug. 3, 1929).

MICROSCOPIC APPEARANCE OF EXPERIMENTALLY PRODUCED DUST NODULES IN THE PERITONEUM[1]

By J. W. Miller, *Acting Assistant Surgeon*, and R. R. Sayers, *Senior Surgeon*, *United States Public Health Service*

The gross appearances and behavior of nodules in the peritoneal cavity of guinea pigs caused by a series of 16 different dusts have been previously reported.[2] These gross responses were so differentiated that it was possible to divide the physiological behavior of dusts in the tissue into the following three groups: (1) A group in which the dust was absorbed or disappeared without visible gross damage; (2) a group in which the dust initiated cellular proliferation followed by fibrosis and retrograde changes; (3) a group in which the dust remained inert in the tissues, neither being absorbed nor causing gross proliferation. The term "inert" is used to describe the *gross appearance and behavior* of these dusts in the tissues. While they cause but little cellular proliferation, they become fixed in the tissues and, when inhaled, may remain in the tissues of the lungs.

While the histologic variations in the three groups were not as striking as the well-marked gross responses, they were sufficiently distinctive to permit differentiation of the dusts into the same three groups.

The dusts considered in this and the previous study are as follows:

1. *Absorptive group:* Calcite, limestone, precipitated calcium carbonate, gypsum, and portland cement.
2. *Proliferative group:* Pure crystalline quartz (2 samples) and a highly siliceous chert.
3. *Inert group:* Anthracite coal (2 samples), bituminous coal (2 samples), hematite, carborundum, precipitator ash, and soapstone.

The median particle sizes of the dusts ranged from 0.75 microns to 1.45 microns, with the exception of soapstone, which was 3.5 microns. The amount injected was 0.2 gram of dust in sterile physiological saline solution. The animals were killed and examined at intervals of 7, 14, 30, 56, 90, 180, and 360 days after injection.

MICROSCOPIC APPEARANCE OF THE DUST NODULES

ABSORPTIVE GROUP

Calcite.[3]—In 7 days the nodule consists of a large clump of dust with which is mixed fine granular necrotic material. The dust and necrotic material practically fill the entire nodule. The surface is

[1] From the Office of Industrial Hygiene and Sanitation.

[2] Miller, J. W., and Sayers, R. R.: The response of peritoneal tissue to dusts introduced as foreign bodies. Jour. Am. Med. Assoc., *103:* 907-911 (Sept. 22, 1934). Also Pub. Health Rep., *49:* 80-89 (Jan. 19, 1934).

[3] Pure Iceland spar. Chemical analysis: Calcium carbonate 99.8, silica 0 1 percent. Median size of particles 1.4 microns.

covered by a thin layer of connective tissue and a layer of peritoneal cells. Surrounding the dust is a narrow cellular zone, widest at the base and tapering at the periphery of the nodules. The cells are primarily fibroblasts and are usually in a parallel arrangement, more or less encapsulating the dust. A few macrophages occur in the cellular portion, most frequently near the large dust clump. A small group of macrophages simulating a giant cell is seen infrequently in the base. Few to numerous capillaries are noted in the edges and bases of the nodules. An occasional small group of extravasated red blood cells is noted at various points of the nodule.

In 14 days the microscopic appearance is essentially the same. Capillary buds accompanied by macrophages and fibroblasts are seen extending into the dust mass. In some small nodules all of the necrotic material has disappeared and a few macrophages at the edges of the nodules show fine, brown pigment particles in their cytoplasm.

In 30 days the pigment-bearing macrophages are slightly increased in numbers and a few pigmented connective tissue cells occur. The necrosis about the dust varies according to the size of the nodule. It is absent in the small nodules. More unpigmented macrophages are present than were noted in 14 days, and adult connective tissue cells are present throughout the nodules in moderate numbers.

In 56 days the appearance of the nodules is practically the same.

In 90 days the connective covering is more dense. Pigmented macrophages and connective tissue cells occur in great numbers in the base and at the edges of the nodules. Pigment-bearing cells extend into the peritoneum adjacent to the nodules. Necrosis is very scant or absent; only a few of the original dust particles remain. The nodules are almost entirely cellular, consisting of macrophages, fibroblasts, and adult connective tissue cells.

In 180 days the nodules are composed of numerous pigmented connective cells and a considerable number of fat cells. An increase of connective tissue with collagen strands runs through the nodule. The usual gross appearance is a small, flat, brown pigmented area in the peritoneum. Occasionally a small nodule presents the microscopic appearance of nodules seen in 90 days.

In 360 days all that remains are small areas of connective tissue in which are pigmented connective tissue cells, and a few pigmented macrophages scattered through large areas of fat cells.

The capillaries are usually few in number, increasing with the size of the nodule.

Limestone.[4]—The microscopic picture presented by limestone is essentially the same as that of pure calcite. More brown pigment is

[4] A high-grade Pennsylvania limestone Chemical analysis Calcium oxide, 54 4 percent, magnesium oxide, 0 4 percent, iron and aluminum oxides, 0 4 percent, silica 1 5 percent Petrographic examination showed granular, irregularly rounded calcite. Median size of the particles, 1 45 microns.

formed in the course of the tests and the original dust is more frequently noted in the animals that had remained on test for 360 days than in the case of calcite, indicating that the dust was not as completely absorbed in the same length of time, yet so little remained that it is likely that it, too, would disappear.

Precipitated calcium carbonate.[5]—The reaction is similar to that of calcite and limestone. The dust had all disappeared by 56 days after injection. The relative amount of brown pigment was greater than that formed by either calcite or limestone. Following 90 days after injection the pigment decreased in quantity, but some was still present 360 days later, occurring in macrophages and connective tissue cells which were both isolated and clumped in areas of fat cells. These pigmented cells also appeared as a slight thickening of the subperitoneal connective tissues.

Gypsum.[6]—The necrosis with and about the dust was not as prominent in the 7- and 14-day tests as was found with the previous dusts and was entirely absent in 30 days. Brown pigment appears in considerable quantities in 14 days, increases in amount as long as the original dust is present (between 90 and 180 days), and then decreases. The appearance of the dust nodules 360 days after injection is the same as that of limestone and calcite.

Portland cement.[7]—The initial reaction is very severe, due to the irritating properties of the dust, but it subsides in 14 days. Large brown particles, different from the bulk of the dust in the nodule, are noted in considerable quantities in 7 days. In 30 days finer, brown intracellular particles are noted. In 180 days the original dust has disappeared from most of the nodules. These nodules consist of small groups of pigment-bearing macrophages and connective tissue cells. Some of the cells bear large pigment particles, quite possibly those noted in 7 and 14 days and a component of the original dust. The type of response is like that of limestone, calcite, and gypsum.

PROLIFERATIVE GROUP

Quartz.[8]—Two samples of pure crystalline quartz were used. They gave identical results.

In 7 days the nodule consists of a large clump of dust mixed with cellular debris, directly under a thin connective tissue capsule covered

[5] A chemical byproduct. Chemical analysis: Calcium carbonate, 87.9 percent; magnesium carbonate, 10.0 percent; magnesium oxide, 0.1 percent; iron and aluminum oxides, 0.6 percent; silica, 0.4 percent. Median size of the particles, 1.28 microns.

[6] The uncalcined, natural mineral. Petrographic examination showed approximately 30 percent as calcite in the form of rounded granules and irregular rhomboidal crystals and approximately 70 percent as fragmented particles of gypsum. Median size of the particles, 1.3 microns.

[7] Petrographic examination showed normal portland cement. The particles were sharp and irregular. Median size of the particles, 1.05 microns.

[8] (*a*) Ground rock crystal of high purity. Chemical analysis showed 99.4 percent silica. Petrographic examination showed clear, crystalline, normal quartz. Median size of the particles, 1.7 microns. (*b*) Finely ground Pennsylvania quartz. Chemical analysis showed 99.1 percent silica. Petrographic examination showed quartz of high purity. Median size of the particles, 1.6 microns.

by a layer of peritoneal cells. A fairly wide zone of fine granular necrotic material surrounds the dust mass. The cellular elements are most numerous at the base and periphery of the nodules. The cellular portions consist of many fibroblasts in various stages of development, some adult connective tissue cells, and a few scattered macrophages, some with engulfed dust particles. The macrophages are most frequently noted near the dust or necrotic zone. The fibroblasts are arranged in concentric whorls and interlacing bundles. They assume a more parallel arrangement about the dust, forming an apparent inner capsule. Fibroblasts are by far the most numerous of the cells. No giant cells are noted. A moderate number to numerous extravasated red blood cells are present at the edges and throughout the nodules. Numerous capillaries occur in the cellular portions.

In 14 days the connective tissue covering is thickened. Fibroblasts still predominate, though the number of macrophages has increased. They are most numerous at the edge of the necrotic zone and may contain dust particles. Only a very infrequent aggregation giant cell is noted. The amount of necrosis appears less and the extravasated red blood cells are fewer than were noted in 17 days.

In 30 days the covering is thin, dense, well-formed connective tissue. The necrosis varies in amounts from small, scattered areas, some about dust clumps, to a fairly wide zone about a large central mass of dust. In some nodules no necrosis is noted. Both the amount of necrosis and the quantity of dust in the central masses are less than were noted in 7 days after injection. The predominating cell is now the macrophage. Many are filled with dust particles, and those near the dust clumps are quite large. Many fibroblasts are mixed with the macrophages. Aggregation giant cells are few in number and are absent in many sections. When much dust is present the nodule is similar in appearance to the nodules found in 14 days. The extravasation of red blood cells noted in the nodule in 14 days is absent.

In 56 days the picture is essentially the same. Numerous fibroblasts underlie the capsule, and a few strands of fibrous connective cells run through the cellular portion of the nodule. A large portion of the dust is engulfed in macrophages.

In 90 days the necrotic areas vary in size but are generally increased. Their relation in size to the cellular portion of the nodule also varies from less in some nodules to greater in others. Early calcification is noted at the centers of these necrotic areas. In some large nodules several centers of necrosis irregularly join each other, forming intervening pockets in which the cellular elements occur. An occasional small blood vessel showing hyalinization of its walls occurs in the necrotic areas. The cells are fibroblasts, macrophages containing

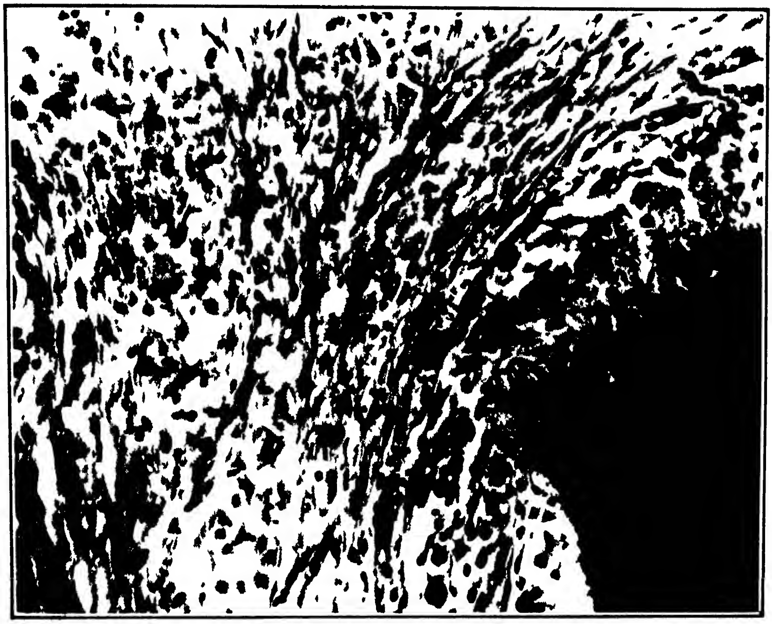

FIGURE 1 Limestone, 7 days after injection X 65

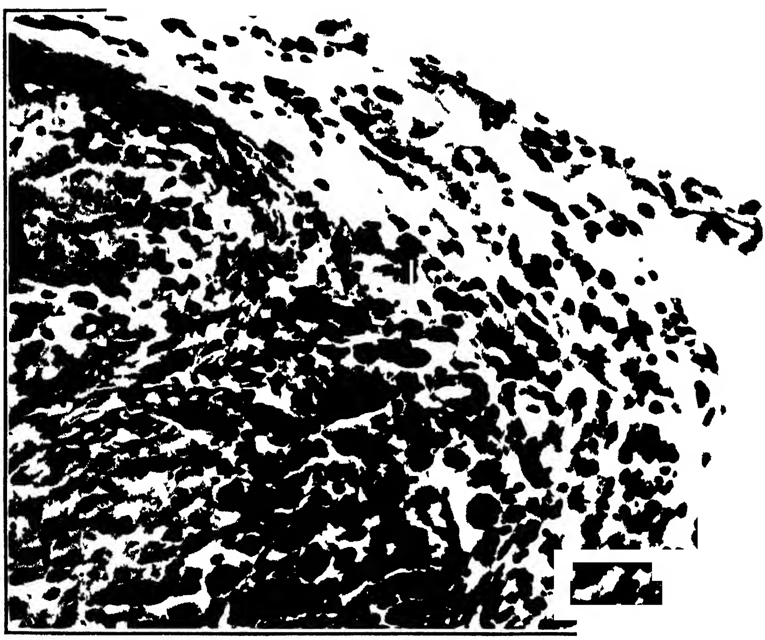

FIGURE 2—Limestone, 30 days after injection X 655

FIGURE 3 —Limestone 180 days after injection ×655

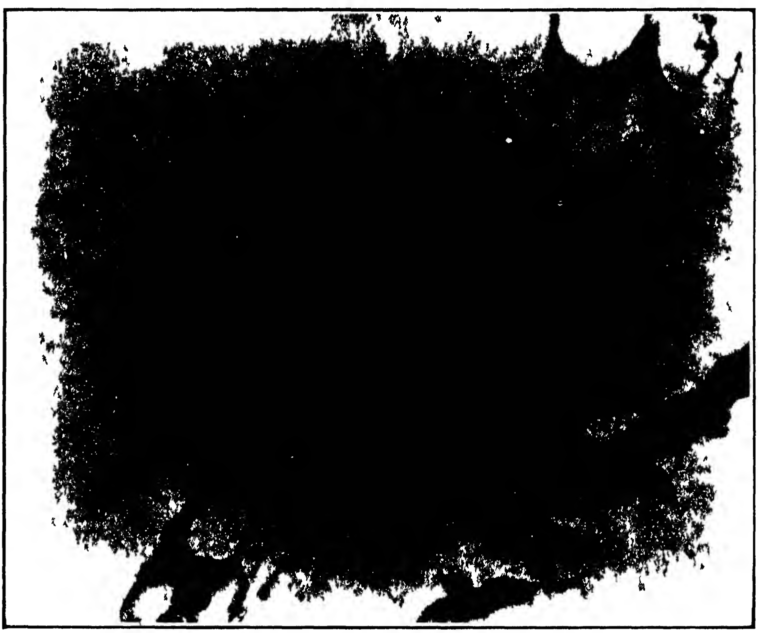

FIGURE 4 —Limestone, 360 days after injection ×655

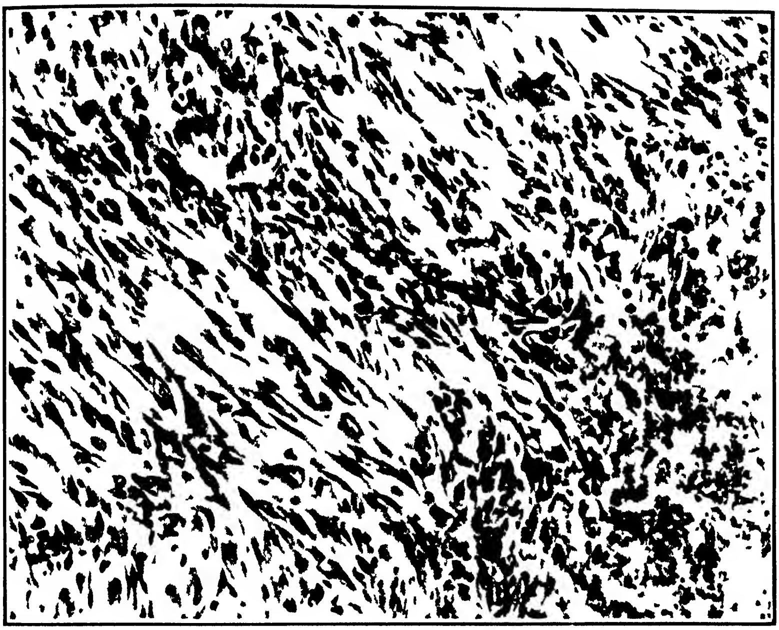

FIGURE 5.—Quartz 7 days after injection ×[illegible]

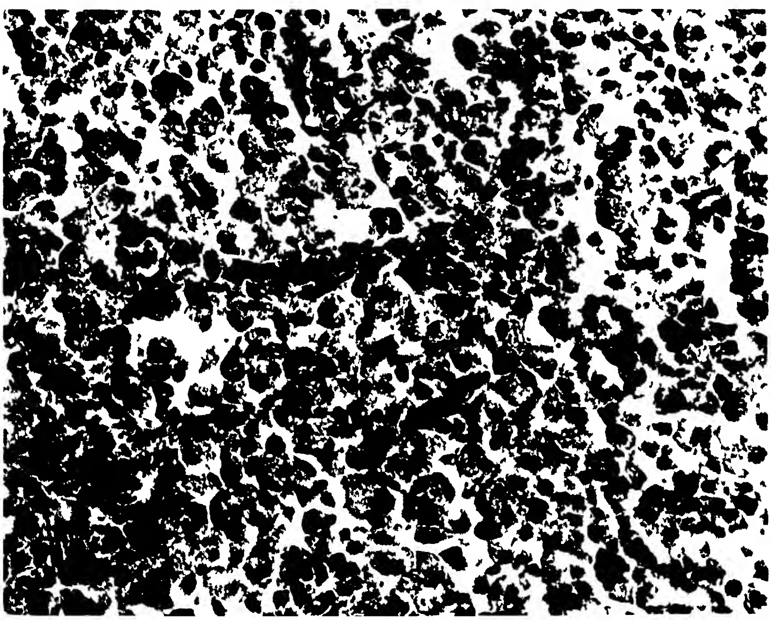

FIGURE 6.—Quartz 30 days after injection ×655

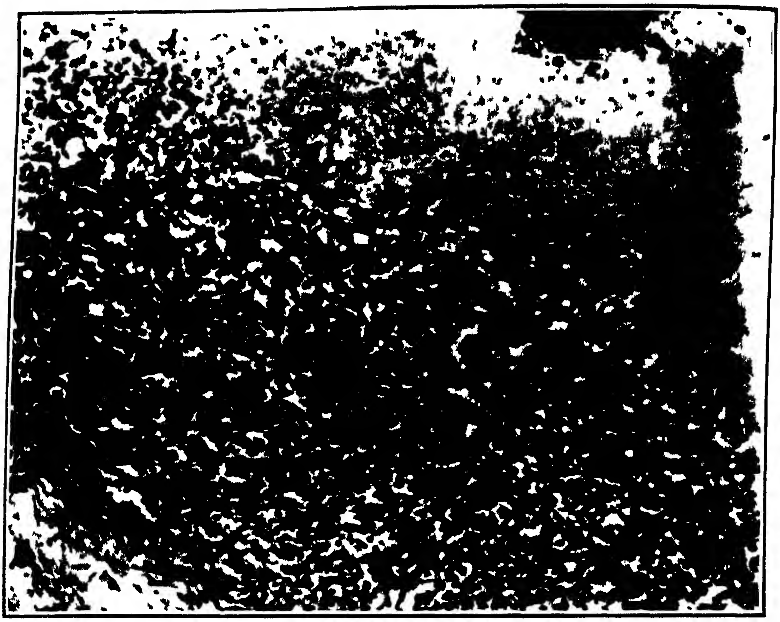

Figure 7.—Quartz 180 days after injection. × 30

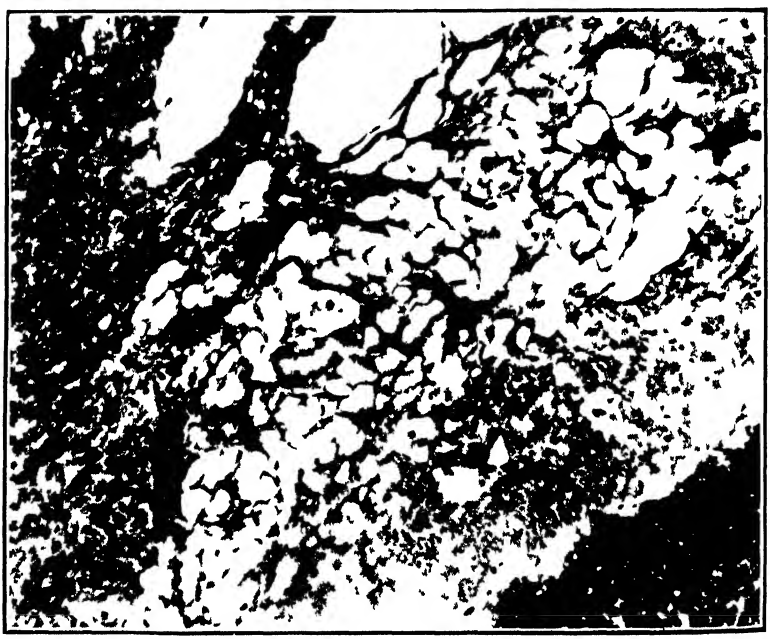

Figure 8.—Quartz 360 days after injection. × 655

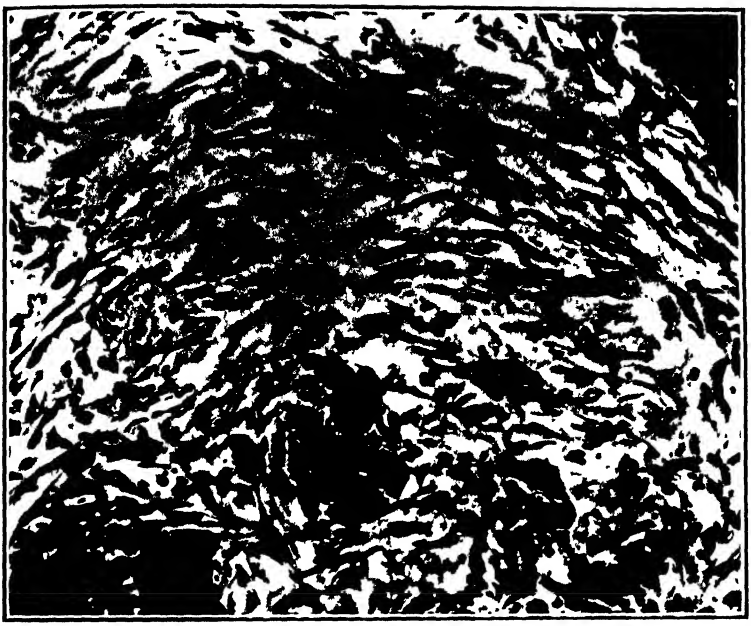

FIGURE 9.—Anthracite coal, 7 days after injection. × 655

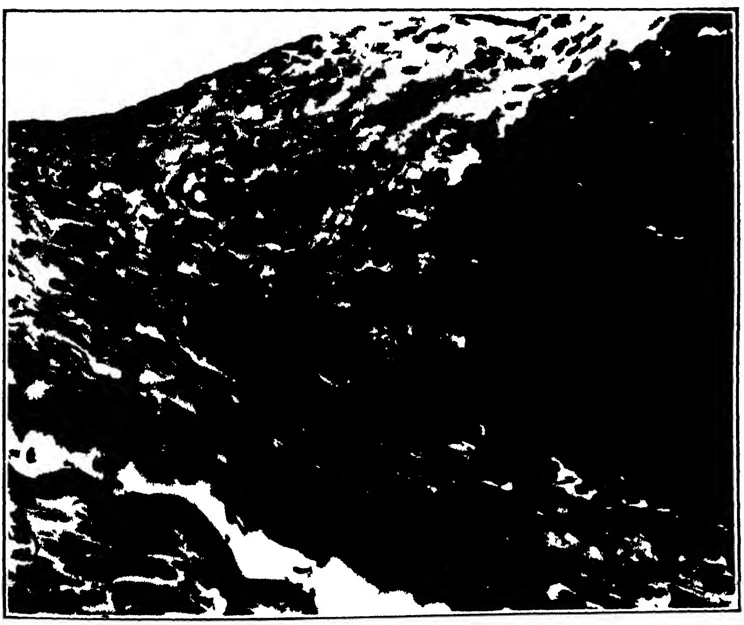

FIGURE 10.—Anthracite coal, 30 days after injection. × 655

FIGURE 11—Anthracite coal, 180 days after injection × 305

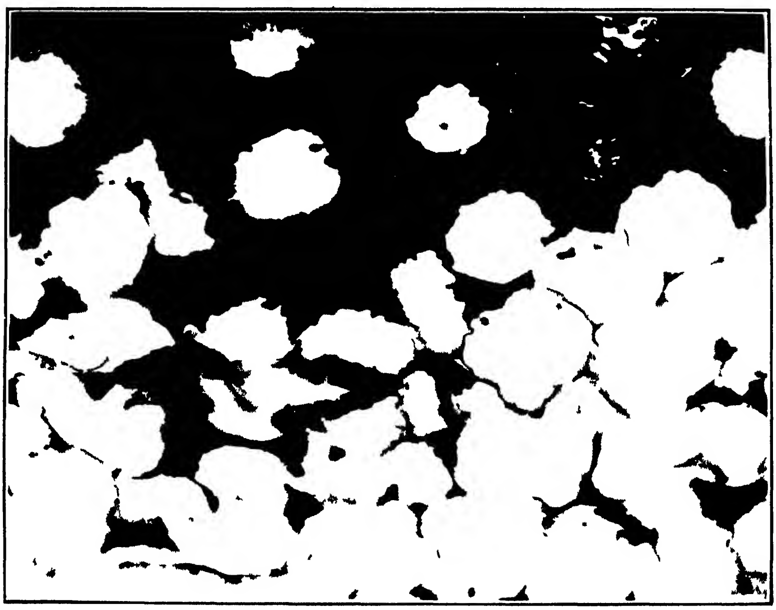

FIGURE 12—Anthracite coal, 360 days after injection × 655

dust particles, and adult connective cells, rather evenly distributed. Capillaries are numerous throughout the nodules.

In 180 days the covering is dense fibrous connective tissue, with an occasional fat cell at the edge of the nodule. Large, irregular areas of fine, granular, necrotic material, collagen fibers, some hyalinized, and cellular debris compose the bulk of the nodule. The centers of these necrotic areas show advanced calcification. In spaces between necrotic areas are numerous adult connective tissue and fat cells and a few fibroblasts.

In 360 days the areas of calcification and necrosis are more extensive. Adult connective tissue and fat cells constitute the cellular elements. More fat is present than was noted in 180 days. With polarized light, a sprinkling of minute quartz particles is seen scattered throughout the entire nodule. Much less of the dust is present than was noted in 7 days, indicating that a large portion has been assimilated by the tissues.

Chert.[9] - The reaction in general is the same as that of quartz. As this dust contained limonite, giving it a brown color, there were minor changes in the appearance of the nodules. The fine, brown dust was noted in macrophages in both the 7- and 14-day tests. These macrophages increased in numbers through the 56-day tests, but were overshadowed by the fibroblasts in 90 days. Calcification of the necrotic areas was not noted until 180 days. It was more scattered but well defined.

INERT GROUP

Anthracite coal.[10]—Two samples were used. They gave identical reactions.

In 7 days the dust nodule consists of a large clump of densely packed dust with irregularities and lighter areas at its margin. No necrosis is noted with or about the dust. A narrow cellular zone, widest at the base, surrounds the dust. The nodule is covered by a thin layer of connective tissue merging into an underlying layer of fibroblasts. The basal portion is composed of fibroblasts, mostly in parallel arrangement. Some strands of fibroblasts are seen penetrating the dust mass. Only an occasional macrophage is noted near the dust. Isolated dust particles and small clumps of dust, some intracellular, are scattered throughout the cellular portion, and a few similar particles and clumps extend to a considerable distance in the peritoneal connective tissue adjacent to the edges of the nodules. Some of these particles are clearly in connective tissue cells and others

[9] The waste product from the concentration of lead and zinc ores Chemical analysis showed 76 1 percent silica Petrographic examination showed quartz and chert, stained with limonite, predominating About 25 percent of the silica was normal, angular quartz fragments Median size of the particles, 1 22 microns.

[10] A Pennsylvania anthracite Petrographic examination showed about 95 percent coal and about 5 percent inorganic materials Of the latter, about 60 percent appeared as quartz and about 40 percent as calcite, siderite, and rutile Median size of the particles, 0 75 micron. The second specimen was similar in composition The median size of the particles was 1.11 microns.

are apparently in macrophages, but the color of the dust obscures identification. Few to a moderate number of capillaries occur throughout the nodules, and a moderate number of extravasated red blood cells are noted in the covering and at the edges.

In 14 days more fibroblasts are present and the macrophages are increased from an occasional one to a few or moderate number. The dust mass appears to be made up of small, more or less uniform sized clumps, and more dust is dispersed through the cellular portion of the nodule. The hemorrhage noted in 7 days has disappeared.

In 30 days the dust is more widely dispersed through the cellular portion of the nodule. At the tapering edges, more dust extends into the adjacent subperitoneal connective tissue. The cellular elements are mostly obscured by the dust, but an occasional visible area shows them to be fibroblasts and macrophages.

In 56 days the nodules are more flattened and practically all of the cellular elements are obscured by the dust. Occasional fibroblasts and connective tissue cells are seen throughout the nodules, but no macrophages are noted.

In 90 days the nodules are more flattened, but are similar in structure to those noted in 56 days. More fibrous tissue cells and fewer fibroblasts are present. An occasional small nodule shows a few fat cells at its edges.

In 180 days more fat cell formation is noted at the edges of the nodules. Small clumps and isolated particles of dust are mixed with the fat cells. A few stranded and isolated fibrous tissue cells run through the dust mass which fills the entire nodule.

In 360 days, more fat cells are present at the edges and bases of the nodules. Mixed with the fat are many isolated particles and small clumps of dust. The cells, when not obscured by the dust, are adult connective tissue cells. The appearance of the nodules, with the exception of the increased number of fat cells, is essentially the same as that noted in 180 days.

Bituminous coal.[11]—Two samples of bituminous coal were used. Both gave identical reactions.

The response is essentially the same as that produced by anthracite coal. More fibrous connective tissue than was found with the anthracite coal was noted in the 14-day tests. More fat cells were found in the 90-, 180-, and 360-day tests.

Hematite[12] *and carborundum.*[13]—Both of these dusts produced a response similar to that of anthracite and bituminous coal.

[11] From Pennsylvania. Petrographic examination showed from 1 to 2 percent inorganic content, essentially all calcite. Median size of the particles, 1.15 microns. The second specimen was from Pennsylvania. Petrographic examination showed from 1 to 3 percent inorganic content, mainly quartz, calcite, and clay. Median size of the particles, 1.19 microns.

[12] Pure ferric oxide in a finely divided state. Petrographic examination showed a high purity hematite as fine, uniform particles. Median size of the particles, 0.95 micron.

[13] Pure manufactured silicon carbide. Petrographic examination showed no impurities. Median size of the particles, 1.15 microns.

Precipitator ash.[14]—This dust consists of small, smooth globules and fine amorphous particles. The former are more numerous. Both types of particles appear engulfed in macrophages and connective tissue cells. In 7 days the fibroblasts in the basal portion of the cell zone are pointed toward and penetrate the dust mass, in addition to assuming an encircling appearance as was noted with the other dusts. Dust-bearing macrophages are most numerous in the 90-day tests. In 180 days the fibroblasts are predominant, though many macrophages still remain. The macrophages are absent in 360 days. As no necrosis is present, and as the nodules are approximately the same size in 360 days as they were in 7 days after injection, this dust has been classed as belonging to the inert group.

Soapstone.[15]—Grossly this dust behaved in the peritoneum like the other dusts of the inert group, but microscopically there was some variation. It is to be noted that the particles of this dust were larger (3.5 microns median size) than those of the other dusts and were long, narrow spicules with sharp pointed ends.

In 7 days numerous macrophages, mixed with a greater number of fibroblasts, form the cellular portion of the nodules. Small clumps of slender dust particles in parallel arrangement are surrounded by macrophages. Several bundle-like groups of dust particles may be in the same clump. These macrophage-invested clumps of dust are numerous in the bases of the nodules, and their numbers increase as the central mass of dust is approached. Some have the appearance of aggregation giant cells, though their nuclei are regularly spaced about the periphery of the small clump of dust particles. Fibroblasts predominate in numbers.

In 14 days no material changes are noted in the appearance of the nodules.

In 30 days the macrophages have so increased in numbers as to be the predominating cell type. Some have dust in their cytoplasm, but most are arranged about dust clumps of varying sizes. Aggregation giant cells with regularly spaced peripheral nuclei are also increased in number.

In 56 days practically all of the dust has been engulfed by the cells and dispersed throughout the nodule. Few large collections of dust particles remain. Fibroblasts are increased in numbers but are less numerous than the macrophages and aggregation giant cells.

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[14] Collected from stacks by electric precipitation. Chemical analysis showed 44.7 percent silica. Petrographic examination showed predominantly perfectly spherical fused glass, rounded semifused masses made up of crystallites, some quartz fragments, calcite, and coal. Median size of the particles, 1.43 microns.

[15] Chemical analysis showed silica, 49.9; calcium oxide, 1.7; and magnesium oxide, 26.2 percent. Petrographic examination showed about 30 percent as tremolite, about 65 percent as talc, and about 5 percent as dolomite. Median size of the particles, 3.5 microns.

In 90 days fibroblasts, singly and in strands, interlace between the dust-bearing aggregation giant cells. Fat cells are noted at the edges of the nodules.

In 180 days the aggregation giant cells engulfing the small clumps of dust are more adult in type. Their nuclei are spindle-shaped and have the appearance of a single layer of encapsulating fibrous connective tissue cells. Fibrous connective tissue cells and fibroblasts are more numerous than in 90 days. More fat cells are present at the edges and bases of the nodules.

In 360 days the nodules are similar in appearance. The nuclei of the aggregation giant cells are dense and elongated and the resemblance to fibrous connective tissue cells is more marked. More fatty metamorphosis is noted at the edges and bases of the nodules.

It is interesting to note that the giant cells formed by the macrophages encircling the dust clumps, and subsequently fusing, present a different appearance from that of the ordinary so-called foreign body giant cell. The nuclei of these cells are regularly arranged and spaced at the periphery and the engulfed dust is centrally placed in the cytoplasm.

The amount of dust is approximately the same in 360 days after injection as was present in 7 days. The dust is engulfed or surrounded relatively early by the cells and does not persist as a central, free mass. The edges of the nodules are tapering throughout the series of tests, but no dust particles are seen in the adjacent subperitoneal connective tissue. There is a sharp line of demarcation between the cellular edge of the nodule and the adjacent peritoneum. Necrosis is absent in all of the tests.

In spite of some points of apparent dissimilarity in the microscopic appearance of the behavior of this dust, its inclusion with the other dusts of the inert group seems logical, as it neither causes gross proliferation nor is it absorbed from the tissues.

SUMMARY

Absorptive group. - Grossly the nodules decrease in size as the interval between injection and examination increases.

The original dust is absorbed or disappears from the peritoneum.

Fine granular necrosis found initially with and about the dust gradually decreases in amount and disappears.

The early fibroblastic reaction is followed by the appearance of numerous macrophages in 30 days and finally the replacement by small amounts of fibrous tissue with subsequent fatty metamorphosis.

The fine brown pigment granules appear at approximately the same time that the macrophages increase in numbers. This pigment is absent in the original dust and does not give an iron reaction.

The numerous giant cells usually accompanying a foreign body reaction are infrequently seen.

A scant hemorrhage occurs and subsides usually in 14 days. This is probably due to the initial injury by the dust.

Proliferative group.—Grossly the nodules increase in size up to 90 days following injection. The 180- and 360-day nodules are approximately the same size as those seen in 90 days.

The original dust, especially quartz, decreases in quantity as the interval between injection and examination increases.

The fine granular necrosis with and about the dust decreases slightly up to 56 days and then increases and is subsequently calcified.

The early fibroblastic reaction is followed by the appearance of numerous macrophages in 30 days which phagocytize the dust particles and, later, fibrous tissue formation with subsequent retrograde changes including necrosis and fatty metamorphosis.

Numerous giant cells usually noted in a foreign body reaction are rarely seen.

The initial traumatic hemorrhage has subsided in 30 days.

Inert group.—Grossly the amount of dust found in the peritoneal cavity 360 days after injection is approximately the same as is noted in 7 days. The nodules become more flattened and dispersed dust particles are noted over considerable peritoneal extent.

The original dust appears to be present in the same quantity that was injected.

Necrosis is absent throughout the entire series of tests.

Early fibroblastic reaction occurs. No great numbers of macrophages are noted at any period in the tests. They are possibly obscured by the color of the dusts.

Later fibrous tissue formation is not particularly extensive but is followed by fatty metamorphosis.

Dust particles are frequently seen in fibrous connective tissue cells.

The giant cells usually noted in foreign body reactions are rarely seen, soapstone being the exception.

A very scant initial hemorrhage occurs but subsides between 14 and 30 days.

CONCLUSIONS AND DISCUSSION

The outstanding difference in the three types of reaction is the necrosis found in the dust nodules. In the absorptive group of dusts the necrosis found with and about the dust appears to be entirely traumatic, as it exists in the early stages of the nodules and gradually disappears. In the proliferative group the necrosis found in the 7-, 14-, and 30-day stages likewise appears to be of traumatic origin, but the increase in the size of the necrotic areas, with subsequent calcification in the 90-, 180-, and 360-day tests, indicates that it is due

to the action of silica or its products. In the inert group no necrosis is noted at any stage of the experiments, indicating that the dusts are not sufficiently irritating in their action to cause extensive injury.

The early fibroblastic reaction (7 days after injection), with the later appearance of macrophages, is quite different from the reported response produced in the lungs by inhalation methods.[16] This might be attributed to the fact that there is a greater amount of fibrous tissue in the subperitoneal connective tissue layer than is found in the lungs and that the fibroblastic response is essentially one of encapsulation. It is also possible that this early fibroblast preponderance may be due to the amount and particle size of the dust.

It is, however, interesting to note that representative dusts of these three groups which had been passed through a 325-mesh sieve (43 micron maximum particle size), gave a typical foreign-body reaction in which large numbers of macrophages appeared in 7 days and were the predominating cell type through the 56-day tests. Giant cells were more numerous with the 325-mesh sieved dust, while they were rarely noted and often absent with the air-separated material. These giant cells were typical foreign-body giant cells with eccentrically grouped nuclei and were quite different from those noted in the soapstone experiments.

While the microscopic appearance of the nodules formed by the action of dusts in the peritoneum differs in some respects from those formed in the lungs, an observation also made by Kettle, using subcutaneous injection methods,[17] the response is constant for each of the three groups of dusts and permits, with the gross appearance, the formation of a biological classification as to their physiological behavior. With this biological classification, which in a number of instances has been correlated with clinical observations and industrial surveys, it is quite possible to use intraperitoneal injection methods to determine the pneumoconiotic potentialities of a dust in a relatively short time, usually 60 days.

ACKNOWLEDGMENTS

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[16] Gardner, L. U. The experimental production of silicosis. Pub. Health Rep., 50: 695-702 (May 24, 1935).

[17] Kettle, E. H. The interstitial reactions caused by various dusts and their influence on tuberculous infections. Jour. Pathol. and Bacteriol., 35: 395-405 (1932).

DEATHS DURING WEEK ENDED OCT. 26, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 26, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,612	7,620
Deaths per 1,000 population, annual basis	10.6	10.6
Deaths under 1 year of age	492	589
Deaths under 1 year of age per 1,000 estimated live births	45	55
Deaths per 1,000 population, annual basis, first 43 weeks of year	11.4	11.3
Data from industrial insurance companies:		
Policies in force	67,558,503	67,008,998
Number of death claims	11,320	11,577
Death claims per 1,000 policies in force, annual rate	8.7	9.0
Death claims per 1,000 policies, first 43 weeks of year, annual rate	9.6	9.9

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Nov. 2, 1935, and Nov. 3, 1934

Cases of certain communicable diseases reported by telegraph by State health officers

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934
New England States:								
Maine		2	17		54	20	0	0
New Hampshire						52	0	0
Vermont	2				65		0	0
Massachusetts	12	7			58	46	1	2
Rhode Island	2				36		0	0
Connecticut	5	6	9	2	66	72	0	0
Middle Atlantic States:								
New York	38	27	18	[1] 13	331	319	5	1
New Jersey	24	10	1	20	10	23	1	2
Pennsylvania	47	54			97	364	6	3
East North Central States:								
Ohio	138	164	48	7	79	161	9	0
Indiana	86	85	28	27	15	80	0	1
Illinois	92	54	12	10	20	153	2	0
Michigan	8	24	3	1	14	36	2	0
Wisconsin	4	5	34	29	57	118	1	6
West North Central States:								
Minnesota	9	4	1		16	74	0	0
Iowa	22	21		1	2	20	1	0
Missouri	83	67	39	52	8	97	5	0
North Dakota	2	2			3	17	0	1
South Dakota	7	1		5	7	5	3	0
Nebraska	13	11		1	22	4	1	0
Kansas	16	12		1	3	43	0	0
South Atlantic States:								
Delaware		1			53		0	0
Maryland [3]	17	33	1		19	9	3	0
District of Columbia	24	11	2			3	2	1
Virginia	66	97			38	194	2	1
West Virginia	49	63	9	14	8	39	1	0
North Carolina [3]	102	119	5		7	39	4	0
South Carolina	34	30	141	311		1	0	0
Georgia [3]	44	42			3		1	0
Florida [3]	19	8			1	1	0	0
East South Central States:								
Kentucky	52	103	14	17	53	62	0	1
Tennessee	55	91	5	46	3	7	3	0
Alabama [3]	51	74	27	50	4	53	1	0
Mississippi [3]	21	40					0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 2, 1935, and Nov. 3, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934
West South Central States:								
Arkansas	25	24	14	6	2		1	0
Louisiana	20	21	2	5	3	3	1	1
Oklahoma [4]	16	13	16	40	2		2	1
Texas [3]	136	62	103	138	3	12	3	0
Mountain States:								
Montana		9		2		106	1	1
Idaho				3	2		0	0
Wyoming					8		2	0
Colorado	15	8			4	76	0	0
New Mexico	4	9		9	8	34	0	1
Arizona	3		13	3		6	0	4
Utah [3]						15	0	0
Pacific States:								
Washington	3	1	3		34	81	4	0
Oregon	3	1	17	22	129	10	0	0
California	59	25	21	11	114	20	6	0
Total	1,428	1,441	593	846	1,461	2,475	74	27
First 44 weeks of year	29,009	31,264	109,521	54,733	704,161	680,512	4,867	1,964

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934
New England States:								
Maine	1	0	21	12	0	0	2	16
New Hampshire	0	0	7	7	0	0	0	0
Vermont	1	0	9	7	0	0	1	1
Massachusetts	28	2	147	121	0	0	1	2
Rhode Island	2	0	15	7	0	0	0	2
Connecticut	7	0	30	31	0	0	2	1
Middle Atlantic States:								
New York	23	1	323	271	0	0	13	12
New Jersey	12	1	81	106	0	0	0	11
Pennsylvania	19	5	298	381	0	0	18	32
East North Central States:								
Ohio [3]	1	10	406	512	2	3	18	23
Indiana	2	1	188	168	1	6	0	13
Illinois	5	2	485	386	2	0	22	24
Michigan	12	4	130	188	0	0	10	7
Wisconsin	1	4	302	352	1	43	5	0
West North Central States:								
Minnesota	1	6	230	74	1	7	0	0
Iowa	0	2	106	57	7	1	1	7
Missouri	2	1	113	76	1	6	4	37
North Dakota	1	0	43	22	2	0	1	0
South Dakota	1	0	31	14	8	3	1	0
Nebraska	0	1	35	27	9	5	0	0
Kansas	2	4	79	58	6	0	6	3
South Atlantic States:								
Delaware	0	0	10	5	0	0	0	2
Maryland [3]	2	0	86	96	0	0	8	4
District of Columbia	1	0	6	24	0	0	0	0
Virginia	2	4	82	119	0	0	7	11
West Virginia	0	1	117	191	1	0	10	17
North Carolina [2]	2	0	85	125	0	0	12	5
South Carolina	0	0	11	13	0	0	7	3
Georgia [2]	0	0	23	13	0	0	9	3
Florida [2]	0	0	6	6	0	0	2	1
East South Central States:								
Kentucky	4	3	95	118	0	0	22	44
Tennessee	2	4	104	108	0	0	18	23
Alabama [2]	1	0	28	53	0	1	10	7
Mississippi [2]	0	0	18	30	0	0	9	7

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 2, 1935, and Nov. 3, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934	Week ended Nov. 2, 1935	Week ended Nov. 3, 1934
West South Central States:								
Arkansas	1	2	18	7	1	1	6	12
Louisiana	0	1	15	13	0	0	7	16
Oklahoma [4]	0	0	15	13	2	3	14	18
Texas [2]	2	11	66	48	2	3	34	34
Mountain States:								
Montana	0	7	77	2	3	0	1	8
Idaho	0	0	51	3	0	0	6	2
Wyoming	0	1	31	10	0	3	0	1
Colorado	0	0	144	128	7	0	6	8
New Mexico	0	0	30	20	0	0	19	19
Arizona	1	2	13	20	0	0	1	2
Utah [3]	1	1	58	27	0	0	0	0
Pacific States:								
Washington	0	14	79	45	16	23	6	4
Oregon	2	3	42	61	0	0	3	2
California	11	11	198	123	0	0	5	13
Total	153	109	4,587	4,318	72	108	327	457
First 44 weeks of year	9,992	6,759	207,450	174,587	5,778	4,248	15,678	18,511

[1] New York City only.
[2] Typhus fever, week ended Nov. 2, 1935, 29 cases, as follows: North Carolina, 1; Georgia, 18; Florida, 1; Alabama, 4; Texas, 5.
[3] Week ended earlier than Saturday.
[4] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August 1935										
Hawaii Territory		3	3				1	1	0	1
Puerto Rico		84	38	1,181	5	3	0		0	65
September 1935										
Arizona	3	4	50	17	6		8	23	0	16
Nevada	2		2		2		1	13	0	1
October 1935										
District of Columbia	10	98	4		1	2	13	48	0	9
Nebraska		41			44		2	134	17	3

August 1935

	Cases
Hawaii Territory:	
Chicken pox	7
Leprosy	3
Mumps	32
Paratyphoid fever	1
Typhus fever	6
Undulant fever	2
Whooping cough	58
Puerto Rico:	
Chicken pox	23
Dysentery	22
Filariasis	5
Mumps	56
Ophthalmia neonatorum	6

August 1935—Continued

	Cases
Puerto Rico—Continued.	
Puerperal septicemia	12
Tetanus	10
Tetanus, infantile	7
Trachoma	4
Whooping cough	116

September 1935

	Cases
Arizona:	
Chicken pox	4
Conjunctivitis	6
Dysentery (bacillary)	8
Epidemic encephalitis	2
German measles	8
Mumps	30
Trachoma	27

September 1935—Continued

	Cases
Arizona—Continued.	
Undulant fever	2
Whooping cough	11
Nevada:	
Chicken pox	3
Whooping cough	2

October 1935

	Cases
District of Columbia:	
Chicken pox	42
Whooping cough	10
Nebraska:	
Chicken pox	17
Mumps	20
Undulant fever	1
Whooping cough	33

WEEKLY REPORTS FROM CITIES

City reports for week ended Oct. 26, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	0	1	0	0	0	1	11	13
New Hampshire:											
Concord	0	------	0	0	0	1	0	0	0	0	13
Manchester	0	------	0	0	0	2	0	0	0	0	11
Nashua	0	------	------	0	------	1	0	------	0	0	------
Vermont:											
Barre	0	------	0	0	1	0	0	0	0	0	2
Burlington	0	------	0	0	0	0	0	0	0	0	4
Rutland	0	------	1	0	0	0	0	0	0	2	6
Massachusetts:											
Boston	2	------	1	6	24	24	0	10	1	13	239
Fall River	1	------	0	1	2	3	0	1	0	0	33
Springfield	0	------	0	0	0	1	0	1	0	12	28
Worcester	0	------	0	1	7	12	0	0	0	3	45
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	12
Providence	0	------	0	0	3	10	0	2	0	[1] 12	60
Connecticut:											
Bridgeport	2	------	0	0	1	1	0	0	1	2	23
Hartford	------	------	------	------	------	------	------	------	------	------	------
New Haven	0	------	0	1	3	6	0	0	0	5	33
New York:											
Buffalo	2	------	2	7	13	26	0	5	0	9	143
New York	24	7	2	38	117	57	0	69	3	112	1,339
Rochester	0	------	0	0	4	1	0	0	0	8	66
Syracuse	0	------	0	3	3	4	0	0	0	21	55
New Jersey:											
Camden	4	------	0	0	3	6	0	1	0	0	31
Newark	0	1	0	4	8	13	0	5	1	22	89
Trenton	0	------	1	1	0	4	0	3	0	3	38
Pennsylvania:											
Philadelphia	3	4	3	20	30	54	0	21	2	62	420
Pittsburgh	5	8	2	6	37	29	0	7	0	32	165
Reading	0	------	0	0	0	2	0	0	0	1	29
Scranton	0	------	------	0	------	2	0	------	0	1	------
Ohio:											
Cincinnati	9	------	1	1	8	16	0	5	0	1	127
Cleveland	14	16	0	4	12	17	0	9	0	24	174
Columbus	3	1	1	5	5	15	0	2	0	0	80
Toledo	1	1	1	1	4	8	0	4	0	15	75
Indiana:											
Anderson	0	------	0	0	1	2	0	0	0	0	10
Fort Wayne	4	------	0	0	1	4	0	0	0	0	26
Indianapolis	4	------	0	2	10	2	0	3	0	16	79
Muncie	1	------	0	5	0	3	0	0	0	0	5
South Bend	0	------	0	0	1	5	0	1	0	0	20
Terre Haute	0	------	0	0	0	2	0	0	0	0	24
Illinois:											
Alton	9	------	0	0	1	1	0	0	0	0	9
Chicago	12	3	8	9	51	105	0	31	2	69	659
Elgin	0	------	0	1	------	3	0	0	0	0	5
Moline	0	------	0	0	0	[illegible]	0	0	0	1	8
Springfield	0	------	0	1	4	6	0	0	0	1	22
Michigan:											
Detroit	1	3	3	2	21	22	0	14	1	109	237
Flint	1	------	0	1	2	13	0	2	0	0	25
Grand Rapids	0	------	0	0	1	3	0	0	1	2	35
Wisconsin:											
Kenosha	0	------	1	3	0	8	0	0	0	4	7
Milwaukee	0	------	0	1	3	23	0	2	0	62	97
Racine	0	------	0	1	1	25	0	1	0	15	16
Superior	1	------	0	0	1	2	0	0	0	3	4
Minnesota:											
Duluth	0	------	0	0	3	2	0	0	0	0	26
Minneapolis	6	------	2	1	6	58	0	0	0	4	81
St. Paul	0	------	0	0	8	21	0	3	0	6	61

[1] Delayed reports included.

City reports for week ended Oct. 26, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Iowa:											
Cedar Rapids	0		0	1	0	1	0	0	0	0	
Davenport	1			0		6	0		0	3	
Des Moines	9			1		9	0		0	0	23
Sioux City	0			1		5	0		0	0	
Waterloo	6			0		5	0		0	0	
Missouri:											
Kansas City	1		0	1	3	14	0	3	1	0	85
St. Joseph	1		0	0	4	1	0	0	0	1	24
St. Louis	20	1	0	0	6	43	0	7	3	1	178
North Dakota:											
Fargo	1		0	1	0	8	0	0	0	0	8
Grand Forks	0			0		0	0		0	0	
Minot	1		0	0	0	2	0	0	0	0	5
South Dakota:											
Aberdeen	0			0		0	0		0	0	
Nebraska:											
Omaha	13		1	0	1	16	0	1	0	0	40
Kansas:											
Lawrence	0		0	0	0	0	0	0	0	0	5
Topeka											
Wichita	0		0	0	0	2	0	1	2	2	27
Delaware:											
Wilmington	0		0	0	2	1	0	0	0	0	26
Maryland:											
Baltimore	2	5	0	2	15	16	0	14	1	12	186
Cumberland	0		0	0	0	4	0	0	0	0	11
Frederick	0		0	0	0	0	0	0	0	0	2
District of Col.:											
Washington	18	1	1	0	12	13	0	10	2	3	146
Virginia:											
Lynchburg	2		0	1	1	2	0	0	0	1	16
Norfolk	1		0	0	2	3	0	2	0	0	13
Richmond	1		1	1	4	2	0	1	0	0	61
Roanoke	4		0	0	1	2	0	0	0	0	17
West Virginia:											
Charleston	0	3	0	0	4	1	0	1	0	0	22
Huntington	2			0		9	0		0	0	
Wheeling	0		0	1	2	0	0	2	2	0	12
North Carolina:											
Gastonia	0	1	0	0	1	1	0	0	1	0	4
Raleigh											
Wilmington	0		0	0	0	0	0	0	0	4	9
Winston-Salem	1	1	1	0	0	8	0	0	2	0	9
South Carolina:											
Charleston	3		0	1	0	4	0	0	0	0	11
Columbia											
Florence	0		0	0	1	1	0	1	0	0	9
Greenville	1		0	1	0	1	0	0	0	0	12
Georgia:											
Atlanta	2	5	1	0	12	7	0	0	2	0	75
Brunswick	0		0	0	0	0	0	0	0	0	2
Savannah	11	1	0	1	1	3	0	0	1	0	23
Florida:											
Miami	4		0	1	3	0	0	1	0	0	25
Tampa	3		0	0	3	3	0	1	0	0	4
Kentucky:											
Ashland	8			0		5	0		0	1	
Covington	0		0	0	2	3	0	1	1	1	4
Lexington	4		0	1	2	3	0	2	2	2	19
Louisville	3	1	0	3	4	9	0	2	0	2	56
Tennessee:											
Knoxville	6		0	1	3	4	0	1	2	0	34
Memphis	4		0	0	5	2	0	4	0	5	62
Nashville	4		0	0	5	1	0	4	1	0	37
Alabama:											
Birmingham	3	4	0	1	8	3	0	1	1	0	69
Mobile	7		1	0	0	0	0	0	0	0	25
Montgomery	2			0		0	0		0	0	
Arkansas:											
Fort Smith	1			0		2	0		0	0	
Little Rock	1		0	0	3	3	0	1	0	0	5
Louisiana:											
Lake Charles	3		0	0	1	0	0	0	0	0	4
New Orleans	12	1	1	0	6	1	0	7	1	18	125
Shreveport	0		0	0	7	0	0	0	0	0	34

City reports for week ended Oct. 26, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Texas:											
Dallas	14		0	1	3	6	0	2	0	5	62
Fort Worth	17		0	0	4	7	0	6	1	0	37
Galveston	5		0	0	1	0	0	1	0	0	15
Houston	5		0	0	8	5	0	2	0	0	59
San Antonio	3		0	0	0	2	0	8	0	0	56
Montana:											
Billings	1		0	0	0	4	0	0	0	0	3
Great Falls	0		0	0	2	1	0	1	0	4	7
Missoula	0		0	0	1	14	0	0	0	0	3
Idaho:											
Boise	0		0	0	0	1	1	0	0	0	7
Colorado:											
Colorado Springs	0		0	0	0	8	0	1	0	2	10
Denver	12		0	2	9	17	0	3	0	0	93
Pueblo	0		0	0	0	27	0	0	1	0	2
New Mexico:											
Albuquerque	0		0	0	0	1	0	4	0	0	15
Utah:											
Salt Lake City	0		0	1	7	19	0	1	0	5	38
Nevada:											
Reno	0		0	0	1	3	0	0	0	0	4
Washington:											
Seattle	0		1	2	5	10	0	3	2	0	80
Spokane	0	1	1	0	0	2	2	0	0	0	40
Tacoma	0		0	1	4	0	0	0	0	0	28
Oregon:											
Portland	0	1	1	3	4	14	0	1	0	1	66
Salem	0			0		1	0		0	0	
California:											
Los Angeles	21	13	0	10	11	30	0	15	1	8	305
Sacramento	8		0	1	1	7	0	3	0	0	30
San Francisco	0	3	1	10	6	20	0	6	0	12	139

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases	State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases
Massachusetts:				Michigan:			
Boston	0	0	24	Detroit	1	0	5
Fall River	0	0	2	Minnesota:			
Springfield	0	0	1	Duluth	1	0	0
Worcester	0	0	2	St. Paul	1	0	0
Rhode Island:				Iowa:			
Providence	0	0	3	Waterloo	1	0	0
Connecticut:				Missouri:			
Bridgeport	0	0	1	St. Louis	1	0	2
New Haven	0	0	1	Maryland:			
New York:				Baltimore	0	1	1
New York	6	1	27	District of Columbia:			
Syracuse	0	0	2	Washington	4	0	3
New Jersey:				South Carolina:			
Newark	0	0	3	Charleston	1	0	0
Pennsylvania:				Kentucky:			
Philadelphia	3	0	8	Louisville	0	0	1
Pittsburgh	1	0	0	Louisiana:			
Ohio:				Shreveport	0	1	0
Cincinnati	1	2	0	Washington:			
Cleveland	2	1	0	Seattle	0	0	1
Indiana:				Oregon:			
Indianapolis	2	0	0	Portland	1	1	0
Illinois:				California:			
Elgin	0	0	1	Los Angeles	1	1	8
Springfield	0	0	1				

Epidemic encephalitis.—Cases: Newark, 1; San Francisco, 2.
Pellagra.—Cases: Washington, D. C., 1; Savannah, 1; Memphis, 1; New Orleans, 1; Los Angeles, 1; San Francisco, 1.
Typhus fever.—Savannah, 2.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended October 19, 1935.—During the 2 weeks ended October 19, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2			1	1		4
Chicken pox		12		163	377	83	44	61	70	810
Diphtheria		9	11	39	17	8	5		1	90
Dysentery				2	2					4
Erysipelas		3		9	5	3	1	1	2	24
Influenza		16	1		43				15	75
Lethargic encephalitis							1			1
Measles		4	47	194	550	45	218	41	178	1,280
Mumps		30			178	82	692	6	64	1,052
Paratyphoid fever	1	1			3	1			1	7
Pneumonia		5			12				5	22
Poliomyelitis					7	3	2	21	2	35
Scarlet fever	3	19	8	237	267	89	33	34	47	737
Trachoma									8	8
Tuberculosis	4	28	16	85	102	8	17	2	28	290
Typhoid fever	7	1	21	54	17	4	6		4	114
Undulant fever				1	1					2
Whooping cough	1	24	7	140	178	113	64	8	17	552

NOTE.—No report was received from Prince Edward Island for the week ended Oct. 19, 1935.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for October 25, 1935, pages 1512–1526. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued November 29, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

Philippine Islands—Occidental Negros Province—Bago.—During the week ended August 31, 1935, 1 fatal case of cholera was reported at Bago, Occidental Negros Province, Philippine Islands.

Plague

Algeria—Philippeville.—During the week ended October 26, 1935, 3 cases of plague were reported at Philippeville, Algeria.

Smallpox

Argentina—Entre Rios Province—Parena—Raices Este.—According to a report dated October 18, 1935, smallpox has been reported at Raices Este, Parena, Entre Rios Province, Argentina. The usual precautions are being taken.

Typhus fever

Chile—Santiago.—A report dated October 29, 1935, states that there are 176 cases of typhus fever in Santiago, Chile, of which 11 are new cases; 5 deaths from typhus fever had occurred in the last 2 days.

Yellow fever

Colombia—Intendencia of Meta.—During the week ended September 28, 1935, 1 case of yellow fever was reported in the Intendencia of Meta, Colombia.

UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg Gen. R C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law· United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

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PREVALENCE OF DISEASE

PUBLIC HEALTH REPORTS

VOL. 50 **NOVEMBER 22, 1935** **No. 47**

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES [a]

October 6–November 2, 1935

Poliomyelitis.—A decrease in poliomyelitis of approximately 1,500 cases occurred during the 4 weeks ended November 2 as compared with the preceding 4 weeks. The number of cases (1,039) for the country as a whole was approximately 50 percent in excess of that for the corresponding periods in 1934 and 1933, but it was only about half of the number reported for this period in each of the years 1931 and 1930. The incidence was still considerably above that of recent years in regions along the Atlantic coast where the disease has been most prevalent, but all other sections reported fewer cases than last year.

Table 1 shows for each State the number of cases reported during the 28 weeks since the increased incidence began, with comparative figures for the corresponding period in the 3 preceding years. The table also includes data for recent weeks of 1935.

TABLE 1.—*Poliomyelitis cases reported in each State during recent weeks*[1] *of 1935*

State	28 weeks ended—				Cases reported in 1935 for week ended—						
	Nov. 12, 1932	Nov. 11, 1933	Nov. 10, 1934	Nov 9, 1935	Sept. 28	Oct. 5	Oct. 12	Oct. 19	Oct. 26	Nov. 2	Nov. 9
All States [2]	3,192	4,340	6,461	9,742	569	445	339	324	223	153	155
New England:											
Maine	54	53	15	137	14	7	13	8	6	1	6
New Hampshire	3	7	6	54	4	3	3	2	0	0	0
Vermont	2	32	6	41	7	3	6	2	4	1	1
Massachusetts	40	350	69	1,368	88	99	52	47	35	28	26
Rhode Island	8	17	1	324	32	25	13	9	7	2	3
Connecticut	24	72	13	388	33	22	18	17	9	7	7
Middle Atlantic:											
New York	276	1,320	202	2,778	150	106	71	84	45	23	25
New Jersey	340	232	58	476	51	31	24	26	22	12	12
Pennsylvania	1,211	363	114	180	15	12	1	13	1	19	3
East North Central:											
Ohio	63	330	242	76	7	3	5	3	0	1	2
Indiana	12	32	53	40	4	1	4	3	4	2	3
Illinois	145	191	190	219	14	23	16	7	12	5	6
Michigan	90	78	200	595	30	25	29	16	14	12	8
Wisconsin	40	45	121	53	4	2	0	1	1	1	1

[1] See Public Health Reports for Oct. 25, p. 1486, Sept. 27, p. 1330; Aug. 30, p. 1166, and Aug. 2, p. 986 for preceding weekly data.
[2] Nevada excluded; no data.

[a] From the Office of Statistical Investigations, U. S. Public Health Service. These summaries include only the 8 important communicable diseases for which the Public Health Service receives weekly telegraphic reports from the State health officers. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports.

TABLE 1.—*Poliomyelitis cases reported in each State during recent weeks of 1935*—Continued

State	28 weeks ended—				Cases reported in 1935 for week ended—						
	Nov. 12, 1932	Nov. 11, 1933	Nov. 10, 1934	Nov. 9, 1935	Sept. 28	Oct. 5	Oct. 12	Oct. 19	Oct. 26	Nov. 2	Nov. 9
West North Central.											
Minnesota	99	307	78	52	2	4	3	3	0	1	0
Iowa	36	41	29	49	3	3	2	7	1	0	2
Missouri	7	33	25	31	2	2	1	1	1	2	2
North Dakota	26	77	9	15	0	1	0	1	1	1	3
South Dakota	8	29	34	9	0	0	2	0	2	1	0
Nebraska	24	14	11	6	1	1	1	0	0	0	0
Kansas	33	44	70	25	4	0	2	0	1	2	4
South Atlantic:											
Delaware	9	14	2	4	0	0	0	0	0	0	0
Maryland	31	40	21	93	13	4	6	3	1	2	4
District of Columbia	31	6	7	80	7	5	4	1	3	1	1
Virginia	41	33	66	672	10	7	1	7	4	2	2
West Virginia	38	80	73	36	0	1	0	1	0	0	2
North Carolina	33	20	31	634	15	9	9	8	3	2	1
South Carolina	32	11	7	29	1	1	0	1	1	0	0
Georgia	8	6	19	18	0	0	0	0	0	3	1
Florida	2	5	10	13	1	0	0	0	1	0	0
East South Central.											
Kentucky	26	32	105	300	19	11	11	13	7	4	8
Tennessee	38	100	51	73	3	1	1	0	1	2	1
Alabama	22	14	41	44	1	0	1	1	1	1	0
Mississippi	18	6	16	11	0	0	2	1	0	0	0
West South Central.											
Arkansas	13	8	8	25	4	0	0	2	0	1	1
Louisiana	27	16	13	82	1	0	4	3	3	0	4
Oklahoma	21	16	14	9	0	0	0	0	0	0	1
Texas	63	33	65	54	1	1	2	3	3	2	4
Mountain:[2]											
Montana	2	6	314	4	0	0	0	1	0	0	0
Idaho	1	2	118	1	0	0	0	0	0	0	0
Wyoming	4	11	7	1	0	0	0	0	0	0	0
Colorado	4	6	14	6	1	0	1	0	0	0	0
New Mexico	5	4	11	4	0	0	0	0	0	0	0
Arizona	5	4	98	15	1	0	0	1	0	1	0
Utah	1	10	13	9	0	0	1	1	1	1	0
Pacific:											
Washington	54	71	676	24	0	2	0	2	5	0	3
Oregon	16	26	72	20	3	1	1	5	2	2	0
California	107	93	3,043	565	26	29	26	20	21	11	8

Meningococcus meningitis.—The number of cases of meningococcus meningitis rose from 240 for the preceding period to 273 for the current 4-week period. This disease is usually at or near its lowest level at this season of the year and the increase is somewhat unexpected. The sharpest rise occurred in the South Atlantic region, where practically every State reported an increase over the preceding 4 weeks and the number of cases (59) was the highest for this period in the 7 years for which data are available. Other sections reported increases, but individual States seemed to be mostly responsible for them. In the East North Central region, Ohio reported 21 cases for the current period as against 7 for the preceding 4 weeks and Illinois 19 as against 9; in the West North Central area, Missouri reported 13 as against 7; and in the Mountain region, Wyoming reported 5 cases as against none. In the New England and Middle Atlantic and South Central regions the incidence of the disease continued to decline.

Compared with recent years the incidence of meningococcus meningitis was the highest for this period since 1930, thus continuing the high level which has prevailed since the first of the year. All parts of the country show an incidence above that for preceding years.

Smallpox.—The number of cases of smallpox reported for the current period was 244. Washington reported 56; Wisconsin, 25; Iowa, South Dakota, and Nebraska, 23 each; Montana, 15; and Illinois 10; about three-fourths of the total cases were in these 7 States. The rather high incidence of smallpox that has prevailed throughout the current year has been due mostly to excesses in certain States rather than to a general increase in the whole reporting area. States in the West North Central and Mountain and Pacific regions were the most affected; in other sections the incidence has generally been below that of recent years.

Typhoid fever.—The incidence of typhoid fever continued to decline in all sections of the country. For the 4 weeks ended November 2 the number of cases totaled 1,600, which was the lowest figure for this period in recent years. In the Mountain and Pacific section the incidence was practically on a level with that of last year, but all other regions reported very significant decreases from last year's figures.

Diphtheria.—The usual seasonal increase of diphtheria continued. For the 4 weeks ended November 2, 5,416 cases were reported. Compared with recent years the current incidence was slightly below the level of last year (5,699 cases) and only about 65 percent of the average incidence for the 5 preceding years. The Mountain and Pacific regions reported about a 50 percent increase over last year's figure for the same period, and the South Atlantic States reported a 20 percent decrease; all other areas closely approximated last year's incidence.

Scarlet fever.—The number of cases of scarlet fever rose from 8,277 for the preceding 4-week period to 15,142 for the current period. For the country as a whole, the incidence compared very favorably with that for the corresponding period in preceding years. In the West North Central and Mountain and Pacific regions the number of cases was somewhat above the seasonal expectancy, but other sections reported about the normal incidence for this season of the year.

Measles.—The incidence of measles apparently reached its low level for the current year during the 4 weeks ended October 5 and the expected seasonal increase was reported from all sections of the country during the 4 weeks ended November 2. The seasonal increase was about the same as in recent years, except in 1934, when the increase at this time was considerably above the expectancy. For the current 4-week period 4,513 cases were reported, as compared with 4,005, 4,537, and 4,280 for the corresponding period in the years

1933, 1932, and 1931, respectively. Last year approximately 9,200 cases were reported for this period.

Influenza.—The influenza incidence was very favorable for the current period. For the entire reporting area the number of cases totaled 2,544, as compared with 2,334, 3,303, and 4,651 for the corresponding period in the years 1934, 1933, and 1932, respectively. The East North Central section reported a 50 percent increase over last year's figure, and the Mountain and Pacific section reported a 40 percent increase, but in all other areas the incidence closely approximated that of last year.

Mortality, all causes.—The average mortality rate in large cities for the 4 weeks ended November 2, as reported by the Bureau of the Census, was 10.7 per 1,000 inhabitants (annual basis). For the corresponding period in the years 1934, 1933, and 1932 the average rate was 10.6, 10.6, and 10.3 respectively.

FURTHER STUDIES OF THE EFFECT OF RADIUM UPON BACTERIA

By R. R. SPENCER, *Senior Surgeon, United States Public Health Service*

Numerous investigators have demonstrated the bactericidal effect of radium emanations. References to many of the papers dealing with this subject have been given in a previous communication (Spencer, 1934).

We have now been able to demonstrate the differential bactericidal effect of the beta and gamma rays of radium far more graphically than heretofore, by permitting the organisms (seeded upon the surface of solid media rather than planted, as formerly, in liquid broth) to grow in the presence of radium enclosed in two separate needles, the metal casings of which possess different densities.

Figure 1 shows a growth of *Eberthella typhi* which has developed around 3 needles after 24 hours' incubation at 37.5° C. All 3 needles were first boiled in 5 percent carbolic acid, then washed in sterile broth and subsequently dipped in a 24-hour broth suspension of *E. typhi* and finally placed on the surface of a sterile agar plate.

Needle (A) is simply a capillary glass tube which served as a control.

Needle (B) is a platinum-iridium needle with a density of 21.5 and screens off approximately 99 percent of the primary beta radiation. The radium encased in this needle emits a gamma radiation equivalent to that from 10 mg of radium element according to tests and certification of the United States Bureau of Standards.

Needle (C) is made of monel metal (an alloy) and has a density of 8.7. It screens off 85 percent of the primary beta radiation and, therefore, permits the passage of about 15 percent of these rays. Its wall thickness is only 0.25 mm, as compared with 0.5 mm wall thick-

ness of the platinum-iridium needle. According to the Bureau of Standards certificate it has a gamma radiation equivalent to that from 5 mg of radium element. Since needle (C) contains 5 mg of radium and (B) is 4 times as long as (C), then (C) contains twice as much radium per unit length.

It can be seen clearly that needle (B), containing 10 mg of radium, did not inhibit growth, while needle (C), containing 5 mg, did inhibit growth on each side of the hollow shank of the needle but not around the ends where the needle is solid. The hollow shank contains the radium salt (bromide).

The two small colonies seen just to one side of needles (A) and (B) are not contaminations, but arose from points on the agar surface where the end of the forceps had touched, accidentally, in making the transfer of the needles to the plate.

Figure 2 shows the same plate after 7 days' incubation. The heavier growth noted at the ends of needles (A) and (B) as compared with the less dense growth along the shanks of these needles may be due simply to the fact that those organisms at the end of the needles are able to draw nourishment from a larger area of agar, or it may be due, in part, to a larger amount of inoculum at the end of the needles.

If stained smears are made of the organisms very close to the middle portion of the shank of needle (B) after only 24 hours' growth, one will find numerous filamentous and thread-like forms. When transferred to fresh media they tend to revert rapidly to the original rod form.

If smears are prepared again after 7 days' incubation, one will find the filamentous forms still more numerous and transfers will not be viable, provided care is taken to remove only those organisms lying close to the needle.

In order to obtain the picture seen in figures 1 and 2, it is necessary to have the surface of the agar plate quite dry before applying the inoculated needles. When the surface contains sufficient moisture to form and retain for several hours a liquid meniscus between the needles and the agar surface, a growth will occur on all sides of even needle (C). This is because the beta rays are not highly penetrating and the liquid will absorb a sufficient number of these particles to permit growth and multiplication to proceed faster than the killing. It does not absorb them all. Although growth does appear, those organisms lying close to the needle will not remain viable after 3 or 4 days

Figure 3 presents additional evidence as to the bactericidal effect of the beta rays. The entire surface of this plate was first seeded with *E. typhi* and then the 10-mg platinum-iridium needle (B) and the 5-mg monel-metal needle (C) were placed upon the seeded sur-

face. After 24 hours there was a definite zone of inhibition around the needle (C).

In figure 4 the needles were placed on the bottom of a sterile petri dish and melted agar was poured over them until they were completely submerged, having a thin film of agar above the needle. After the agar had solidified, the entire surface was seeded with *E. typhi.* Inhibition of growth was observed only along a narrow oblong area immediately above the 5-mg monel-metal needle (C).

This experiment indicates that the killing rays (beta) are able to penetrate the agar for a short distance. None of these tests yielded evidence that the gamma rays (known to be highly penetrating) from either needle (B) or (C) are bactericidal. Perhaps all results can be accounted for by the action of the beta rays alone.

DO GAMMA RAYS STIMULATE GROWTH OF BACTERIA?

The bacillary strains that we have irradiated (*Proteus vulgaris* X 19 and *E typhi*) have shown the formation of giant forms and long filaments. After the irradiation has taken place over many generations, there is a tendency for these forms to persist in subsequent transplants which are not irradiated.

Either cell division is retarded by an irradiation effect which is sublethal, while the organisms continue to grow at a normal rate, or growth is stimulated and the normal rate of cell division is unable to keep up with the accelerated growth, thus resulting in filaments. At any rate, we invariably obtain very large forms after irradiation.

In figure 5 we see the effect of continuous irradiation of a yeast (*Saccharomyces elipsoideus*) for 22 daily transplants. The control strain, which was not irradiated, shows the normal size of the yeast. It will be noted that there are a few cells of normal size in the irradiated culture, and this is always the case.

The result of the irradiation of *E. typhi* is shown in figure 6. Here we also see many normal-sized organisms, but the predominance of the filamentous variety is apparent.

Since the beta rays are generally regarded as highly bactericidal, we might reasonably assume that the change here noted is due to the gamma radiation; however, there is no proof of it in this test. But since the large forms in the irradiated strain are viable and transferable and remain in the cultures after several transplants, we regard this as proof that some portion of the radium emanation does produce nonlethal effects.

On the other hand, Wyckoff and Rivers (1930) state that "for the two motile bacilli, *Escherichia coli* and *Salmonella aertrycke*, the absorption of a single 155 kv electron is sufficient to cause death. Furthermore, all, or nearly all, the electrons absorbed are lethal. The same is undoubtedly true of *Staphylococcus aureus*." These investi-

gators consider the radiation not suitable for altering the inheritable characteristics of bacteria.

Later, Wyckoff (1930), in speaking of the effects of X-rays, says: "Although on the average the absorption of one quantum of these radiations is sufficient to kill a bacterium of either *E. coli* or *S. aertrycke* relatively few of the absorbed quanta are lethal * * * The fact that so many quanta can be absorbed by a bacterium without causing death apparently means that the vital elements within the cell which can be destroyed by a direct quantum hit are much smaller than the cell itself."

In view of these observations of Wyckoff and Rivers and the well known fact that the gamma rays of radium are practically identical with the X-rays of short wave length, we were inclined to regard the effect of radium emanations shown in figures 5 and 6 as suggestive that heritable changes might be induced by irradiating bacterial cultures in series over many generations, and that the absorbed quanta which were nonlethal might modify the germ plasm.

EFFORTS TO INDUCE BACTERIAL MUTATIONS BY MEANS OF IRRADIATION

Prior to 1927 the numerous attempts to modify the germ plasm of various species resulted in failure. In that year Müller (1927) succeeded in producing mutations in flies by the use of X-rays, and in the following year Hanson (1928) and Stadler (1928) produced mutations with radium. The question was then raised as to whether or not all mutations were due to natural radiation, since it is well known that radiations are constantly emanating from the earth's surface.

In support of this view the experiments of Babcock and Collins (1929), who conducted their work in a street car tunnel in San Francisco, and those of Hanson and Heys (1930), who used a carnotite mine in Colorado, have shown that the occurrence of mutations in *Drosophila* was much greater in these locations than mutations occurring in corresponding flies in the laboratories where the natural radiation was far less.

This suggests that radio-activity of the earth's surface may play an important role in the evolution of species by furnishing heritable variations for the action of natural selection. As Hanson (1928) says, "Heritable variations are facts of nature, else there could have been no evolution." Müller and Mott-Smith (1930), on the other hand, have shown that mutation frequency in *Drosophila melanogaster* is at least 1,300 times as high as it would be if caused solely by the radiation which the flies receive from their outer environment. This observation suggests that most mutations must come about as a result of other causes than the natural radio-activity arising from the outer environment. While these other causes are, as yet, unknown,

all geneticists agree that gene mutations resulting from radium and X-ray are indistinguishable from those occurring naturally, and that radiation is the only satisfactory method known at present by which the problems of the mechanism of mutations may be studied.

Hanson and Heys (1928) and Oliver (1930) have shown for radium and X-rays, respectively, that the rate of mutation in *Drosophila* is determined by the strength of dosage applied. The rate seemed to be directly proportional to the dosage. Doubling the time of exposure also doubled the number of mutations.

In view of these observations and of our own results with radium, we came to the conclusion that geneticists who wish to study the causes of mutations can find no better group of organisms upon which to experiment than bacteria, or other single-cell forms, because a bacterial generation is so short, permitting the race to be observed over a relatively long period. It was thought also that we could reasonably expect the germ plasm of single-cell forms to yield more readily and to a greater degree to the environmental influences than the germ plasm of multicellular forms. The somatic cells of the latter serve to protect the germ cells from purely external influences, while in the former the somatic component and the germinal component are contained in one and the same cell at all times. However, our own efforts in this field have been somewhat disappointing, since we have found bacteria, in general, to be highly resistant to irradiation (so far as the production of mutations is concerned) when compared with the reported results following the irradiation of flies and other species. According to Oliver (1934) also, bacteria in general are less sensitive to irradiation than other forms.

In all previous studies of the effect of radio-active substances upon bacteria, so far as we are aware, only individual cultures were irradiated and no effort has been made to study the effect following a continuous application of the rays to a rapidly multiplying bacterial species throughout many thousands of generations.

Technique of irradiation.—The same radium needles used in our previous work, referred to above, were employed in the following experiment. One or more needles are threaded with a small loop of platinum wire to facilitate removal from the broth tubes. Removal is then easily accomplished by the use of a platinum wire hook. The needles are first sterilized by boiling in 5-percent carbolic acid and then are tested for sterility by washing in sterile salt solution to remove excess of phenol and planting in sterile broth tubes for several days. The first tube in a series of sterile broth tubes is then inoculated with a pure culture, preferably a single-cell culture of the organism to be studied, and at the same time the needles of radium are placed in the same tube. When a good growth has appeared after 24 hours' incubation, the needles are transferred to the next

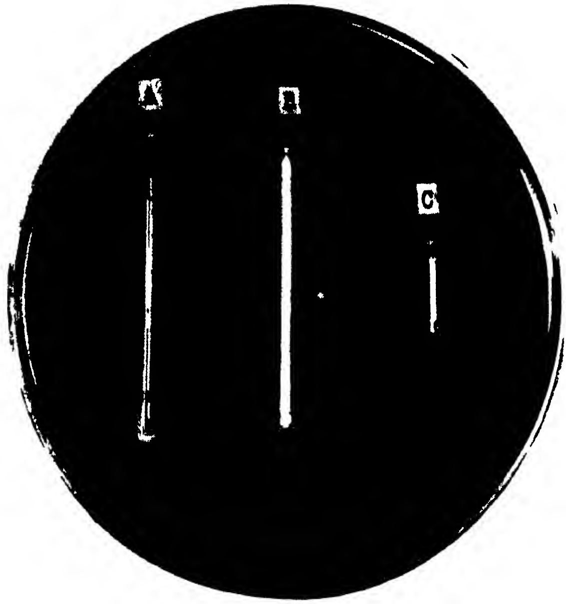

FIGURE 1.—Needles dipped in broth culture of *E. typhi* and placed on sterile agar surface. 24-hour growth.

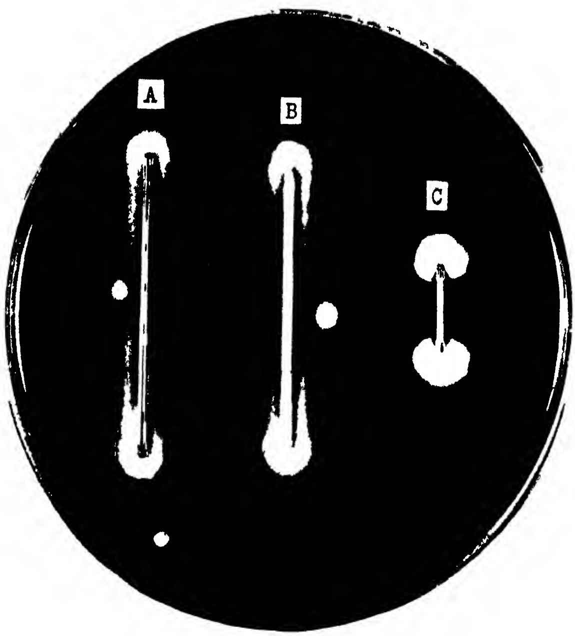

FIGURE 2.—Same as fig. 1—7 days growth.

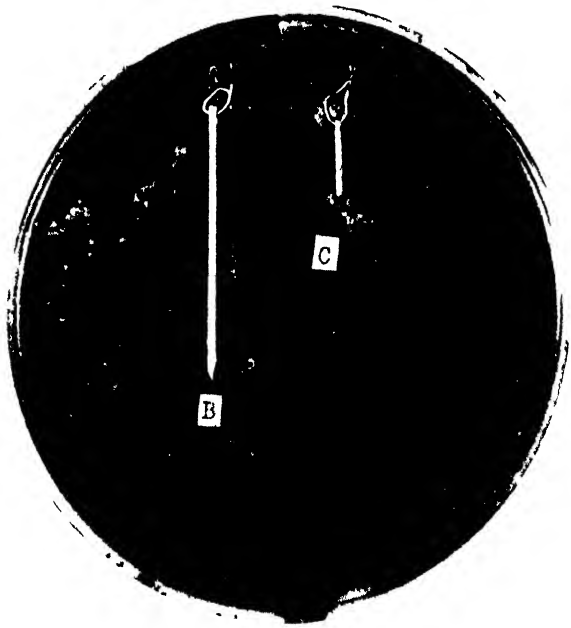

FIGURE [illegible].—Dry surface of agar seeded with *E. typhi* and sterile needles immediately superimposed. 24 hour growth

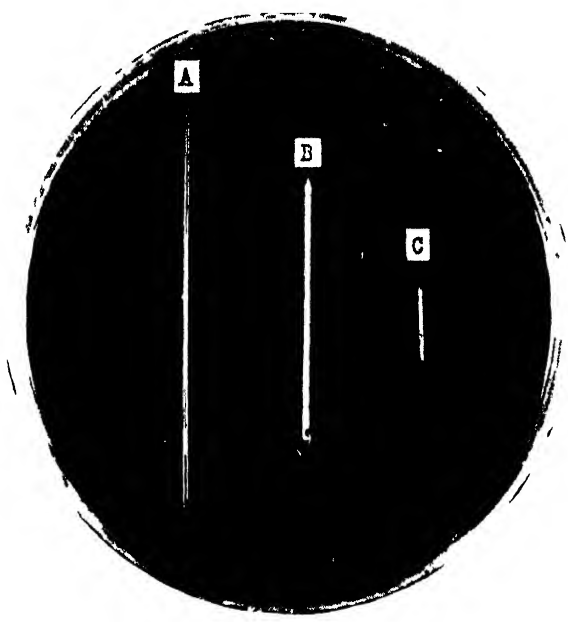

FIGURE 4.—Needles buried in agar and dry surface seeded with *E. typhi* 24 hour growth

Strain not irradiated

Strain irradiated during 22 days' continuous growth

FIGURE.—*Saccharomyces ellipsoideus*

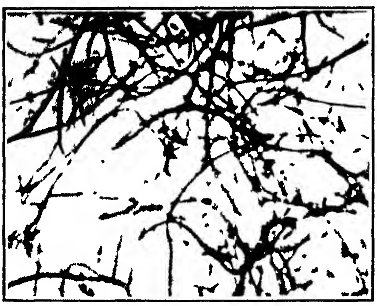

FIGURE 6.—*E. typhi* 24-hour growth of 91th irradiated transfer

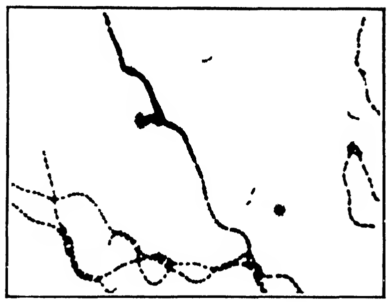

FIGURE 7.—*S. scarlatinae*, series I, 12th tube. Apparent fusion of streptococcal element. Irradiated.

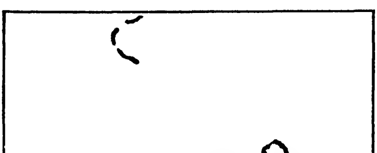

FIGURE 8.—Strep. series XIX–G 16. Original irradiated tube.

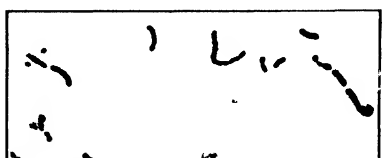

FIGURE 9.—Strep. series XIX–G 16. Original irradiated tube.

Figure 10.—Strep series XIX G 19 Original irradiated tube

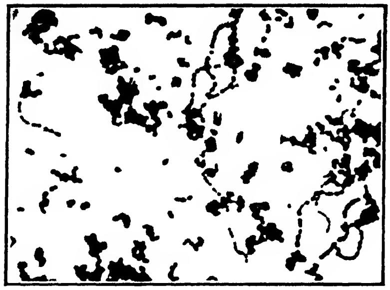

Figure 11.—Strep series XIX G 22 Original irradiated tube

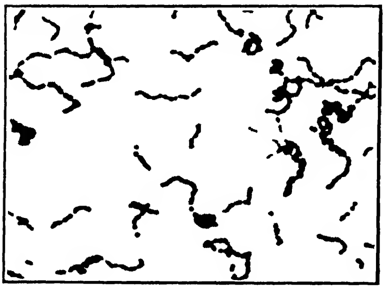

Figure 12.—Strep series XIX G 22 First broth transfer

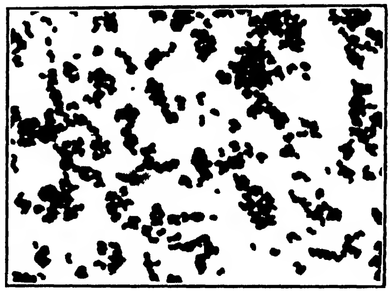

Figure 13.—Strep series XIX G 22 First agar transfer

Figure 14.—Strep series XIX G 23 Third transfer in broth

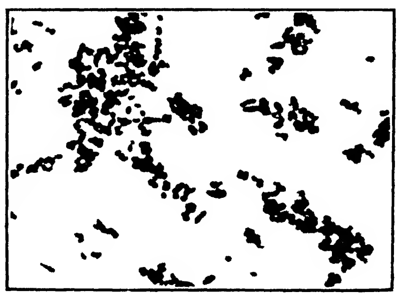

Figure 15.—Strep series XIX G 23 Third transfer on agar

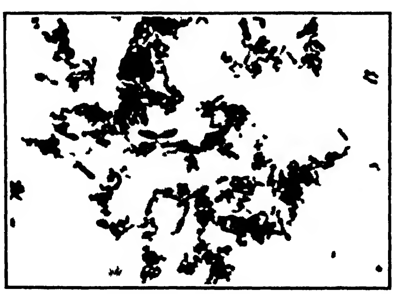

Figure 16.—Strep series XIX Bact var J 16 19th transfer on agar

sterile broth tube in the series and transferred daily in the same manner for as many days as seen fit. The needles thus carry over their own inoculum to each tube in succession. We have always carried as control one or more series employing identical technique, using a plain platinum or nicrome wire with the same strain of organisms. Furthermore, as a control against air contaminations, a sterile wire is similarly transferred in series daily from tube to tube of sterile broth.

Following this technique a strain of *Streptococcus scarlatinae* (N Y 5) has been irradiated in series 19 times and continued for at least 12 transfers (12 days), but usually many more. In some series we employed only one needle (5 mg). In others as many as seven (35 mg).

In 6 of the 19 series we obtained forms from the irradiated tubes that were morphologically, serologically, and culturally distinct from the original streptococcus. In every instance they were bacillary forms. In only 2 tubes of the entire 19 series did we obtain growth other than streptococcus in the nonirradiated controls. These were molds and developed many days after the tests had been completed and the tubes had been opened many times.

On the other hand, the irradiated tubes that produced variants could be recognized by a peculiar discoloration of the bacterial sediment in the bottom of the tube. The sediment turned a brown or dark brown color, and even the supernatant broth was considerably darker than the broth in the control tubes and in the other tubes of the irradiated series. The sediment appeared as if it had been scorched by the irradiation. The discoloration was observed to some extent in other tubes of the irradiated series, but it was never as distinct as in those tubes that produced a variant. It was not observed at the time of irradiation or even the following day, but always after several days, or in some cases as long as 10 days after irradiation.

When transplants were diluted out upon agar slants (rather than plated out) from these tubes, two distinct types of colonies were observed; one was the original streptococcus, while the other was a more vigorously growing variant.

No such changes took place in any of the nonirradiated control series, each of which was plated out to test for purity.

Additional evidence that these forms were genuine variants or mutants was obtained by observing in smears what seemed to be actual transitions of the streptococcal chains to the bacillary forms (figs. 7, 8, 9, 10, and 11).

In contrasting the corresponding tubes of the irradiated with the nonirradiated series one almost invariably noticed that the growth in the radium tubes was retarded for several hours; yet, after the needles

had been passed on to the next tube in the series, the growth frequently became more luxuriant and the organisms, as a rule, took a deeper stain than those in the corresponding control tubes.

STREPTOCOCCUS IRRADIATION, SERIES XIX (MARCH 31, 1933)

In the following are given the detailed results of one of the irradiated series in which a bacillary variant was observed. This series is selected for record because proof of the genuineness of the variant was furnished when certain sub-cultures reverted to the typical parent strain of streptococcus.

Material.— (*a*) Agglutination tubes 3-inches by ⅜-inch containing 1 cc of plain broth at a pH 7.4; (*b*) monel-metal needles containing 5 mg of radium each; (*c*) aluminum needles of approximately same size used as controls.

Technique.— After having been tested for sterility by boiling in 5 percent phenol and then incubating several days in broth, 4 of the radium needles were placed in the first tube of the series to be irradiated and at the same time the same tube was inoculated with one drop of a 24-hour broth culture of *S. scarlatinae.*

In order to exclude as nearly as possible the probability of contaminating organisms from the air, we set up, in addition to the irradiated series, six control series. The first three control series consisted simply of sterile broth tubes. One sterile aluminum needle was transferred each day from tube to tube, beginning with tube no. 1 and continuing to the next tube in each of the three series. The second of the three control series consisted of the transfer of *S. scarlatinae* daily by means of similar aluminum needles. Thus, we had 6 control series to 1 irradiated series, the technique of transfer being identical in all 7 (table 1).

TABLE 1.—*Irradiation of streptococcus scarlatinae—Serial daily transfers with plain and radium needles from tube to tube for 23 days*

Mar 31, 1933

Series no	Method and material transferred	1 cc plain broth in agglutination tubes 3″×⅜″. Dai transfers																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	Transfer of sterile plain needle	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2	do	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
3	do	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
4	Transfer of Strep. with plain needle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5	do	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
6	do	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
7	Transfer of Strep with radium needle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+ V	+ V	+ V	+ V	+ V	+ V	+ V

O = No growth.
+ = Typical streptococcus growth.
V = Bacillary variant.

In the first tube of the 3 control series inoculated with the streptococcus, a good growth appeared in 6 hours. In the first tube of the irradiated series, some retardation of growth was observed in 4 hours when compared with the nonirradiated tubes, but after 24 hours no difference could be detected. All needles were transferred to the next succeeding tube daily for 23 days, the needles thus carrying over their own inoculum.

On the 11th day there were added to the 11th tube of the irradiated series 3 additional sterile radium needles, making a total of 35 mg of radium.

At the end of 23 days, all tubes of the three control series in which the streptococcus was transferred daily without irradiation showed grossly no unusual growths, and smears of all yielded only typical streptococci.

Visible changes occurred only in certain of the 23 tubes of the irradiated series. Previous experience had taught us that it would not be necessary to open and examine any of the irradiated series until visible gross changes occurred. The appearance of the first 15 tubes revealed nothing unusual.

From the 16th to the 23d tube, inclusive, however, the sediment turned a distinct brown to dark brown color several days after inoculation, and the supernatant fluid became distinctly more turbid than that in any of the other tubes.

Smears and transfers were then made of all 23 tubes of the irradiated series. From the first 15 only pure streptococci were seen and recovered. Tubes 16 to 23, however, yielded distinct bacillary forms, and when diluted out on agar slant tubes 2 distinct types of colony were visible. One was the typical fine, translucent colony of the normal streptococcus and the other was a much larger, decidedly more opaque, colony and grew more vigorously. These colonies yielded deeply pycnotic cocco-bacillary forms. They certainly appeared to be in no way related to the streptococcus and would easily be considered an entirely different species. However, when one of these isolated colonies was transplanted to both broth and agar slants, the growth in broth yielded a large number of streptococcus chains as well as scattered clumps of bacillary forms (figs. 12, 13, 14, and 15), while on agar the bacillary forms predominated, a few being coccoidal but none in chains. After a few transfers on agar, the chain formation could not be obtained even in broth.

The variant strain from the 16th tube in the irradiated series was transferred daily to both broth and agar for 6 days and thereafter has been transferred every 2 or 3 weeks for 6 months. In broth it grows very slowly, forming a heavy sediment at the bottom after a few days and a pellicle at the top. This pellicle formation has

gradually increased as transfers were continued. On agar the colonies are large, whitish, and opaque. The organisms themselves have always been deeply Gram-positive, and in our latter transfers the bacillary forms have become even larger and many unusual shapes are seen. At the present time it is distinctly pleomorphic (see fig. 16), but yields only one type of colony.

Transfers had been made from the original irradiated tubes nos. 16 to 23, inclusive, to broth daily for 6 days, and then these 48 tubes were left at room temperature for several months. The bacillary variant in all these tubes appeared to be the same, but only the one from tube no. 16 has been transferred regularly every 2 weeks on both broth and agar. Its sugar reactions are given in table 2.

TABLE 2.—*Sugar reactions of streptococcus variant J. 16*

	1 week	6 weeks
Adonital	O	alk.
Amygdylin	O	O.
Arabinose	O	alk.
Dextrine	O	alk.
Dulcitol	O	O.
Erythritol	O	O.
Galactose	O	O.
Glucose	a	a.
Glycerin	O	alk.
Inositol	a	a
Inulin	O	alk.
Lactose	O	alk.
Levulose	a	a.
Maltose	O	alk.
Mannitol	O	O.
Mannose	a	a.
Raffinose	O	alk.
Saccharose	O	alk.
Salacin	O	alk.
Sorbitol	O	O.
Starch	O	alk.
Trehalose	O	a (slight).
Xylose	O	a (trace).
Litmus milk	alk.	alk. and reduction.

O=No change in reaction.
a=Acid
alk=Alkaline.
Indole test was negative. Nitrates were markedly reduced. No hemolysis on blood agar. Gelatine was not liquefied. Gas was not produced in any sugar.

A pure culture of the bacillary variant from each of the original irradiated tubes nos. 16 to 23, inclusive, had been transferred to plain broth tubes for 6 successive days and all 48 tubes left at room temperature for several weeks. Transplants were then made from all these tubes to agar slants, using the same loops of culture upon several successive tubes in order to obtain single colonies. It was very surprising to find that only the 5th and 6th transfers from tubes nos. 19, 22, and 23 now yielded fine pinpoint colonies, the organisms of which possessed the typical streptococcus morphology. These organisms grew as fine hemolytic colonies on blood agar and agglutinated promptly in the specific immune serum prepared from the original NY 5 streptococcus strain. On the other hand, the transfers from all other tubes which had originally come from tubes nos. 16, 17, 18, 20, and 21 of the irradiated series yielded only the luxuriantly

growing bacillary variant which is nonhemolytic and is not related morphologically or serologically to the parent streptococcus strain. Furthermore, it should be emphasized that *only the 5th and 6th transfers* from nos. 19, 22, and 23 yielded the streptococcus. The 1st, 2d, 3d, and 4th transfers still yielded only the bacillary variant. Therefore, the streptococcus in the 5th and 6th tubes was derived from the bacillary variant in the first four transfers coming from the irradiated tubes 19, 22, and 23.

The original irradiated tubes had now dried up, so we returned to the first broth transfers from each of the 7 original irradiated tubes nos. 16 to 23, inclusive, which had remained at room temperature for 4 months. Again transfers to both broth and agar slants were made in series daily from all 7 and continued for 10 days. Only the bacillary variant was recovered, although it is recalled that similar transfers made earlier from the same tubes had yielded a pure streptococcus in the 5th and 6th transplants of tubes 19, 22, and 23. This means that cultures of a variant at one time capable of reverting to the parent strain by continued transfer are at another time incapable of reversion even when employing, as far as possible, the same technique.

In early transfer series of nos. 19, 22, and 23, even the 4th transfer could not be made to revert to the streptococcal type, although these 4th transfers were the same tubes just preceding those in the series which formerly did yield a streptococcus.

DISCUSSION OF STREPTOCOCCUS SCARLATINAE SERIES XIX

These results suggest that variability and constancy of bacterial strains are influenced by factors of which we have, as yet, little knowledge and control. It should be emphasized that the results here recorded could not be repeated regularly by employing, as far as possible, the identical technique. Since the irradiation of the streptococcus in series XIX, we have now completed a 20th series, in which the organisms were irradiated for 60 days without obtaining any changes whatever, and we have no explanation for the fact that the variation occurred in 6 series and failed to occur in 14. The same technique was employed in all, except for the fact that the amount of radium used was not always the same.

Although our results have been irregular, we believe them to be genuine because of the following observations:

1. There were six times as many control as irradiated tubes, none of which yielded any unusual forms.
2. Some of the bacillary variants did revert to the original streptococcus.
3. The first transfers from an isolated colony of the bacillary variant yielded a predominance of streptococcic forms *in broth* and

only bacillary forms *on agar*, even when the same inoculum was used. (Compare fig. 12 with fig. 13 and fig. 14 with fig. 15.)

Despite these convincing reasons for the genuineness of our observations, we have not been able to obtain similar results in 5 tests averaging about 40 transfers each and in which each experiment was carried out in the contamination-proof pyrex glass box described in the following paper. We have no explanation, as yet, for this disparity in results.

WHAT IS THE DIFFERENCE BETWEEN BACTERIAL VARIANTS AND MUTANTS?

Our knowledge of bacterial variation is, at present, so meager and inexact that we frequently employ the terms "variant" and "mutant" somewhat loosely. If we define a bacterial variant as "any strain that displays morphological, serological, or cultural characters different from its parent strain, but under suitable conditions can be made to reassume the characters of the parent strain", and a mutant as "any strain that will not under any conditions revert to the original type", then the bacillary form described in our "Streptococcus XIX" experiment was potentially both a variant and a mutant, since some of the transplants reverted and others have remained as bacillary forms for 2 years and still show no cultural, serological, or morphological relationship to a streptococcus.

Our tests seem to suggest, therefore, that genuine mutations, although extremely rare, do occur.

EFFECT OF CONTINUOUS IRRADIATION OF THE SAME CULTURE FOR 30 DAYS

The following tests suggest that continuous irradiation of the same culture over a very long period does not necessarily induce either variations or mutations.

Technique.—An apparatus was set up as shown in figure 17. It consisted of a collodion sack attached by means of rubber bands to one end of a large glass tube prepared by cutting off the butt of an ordinary test tube. The tube with the attached sack was plugged with cotton at the open end and made fast in the neck of a 1,000-cc Ehrlenmeyer flask by means of tightly fitting cotton wadding, permitting the sack to hang down in the flask. Two 5-mg radium needles were placed in the bottom of the sack. The flask and sack were then nearly filed with plain broth to the same level and the apparatus was sterilized for ½ hour at 15 pounds pressure.

Two such flasks were prepared and the fluid on the inside of the collodion sacks was inoculated with *S. scarlatinae* and *E. typhi*, respectively, and incubated for 30 days.

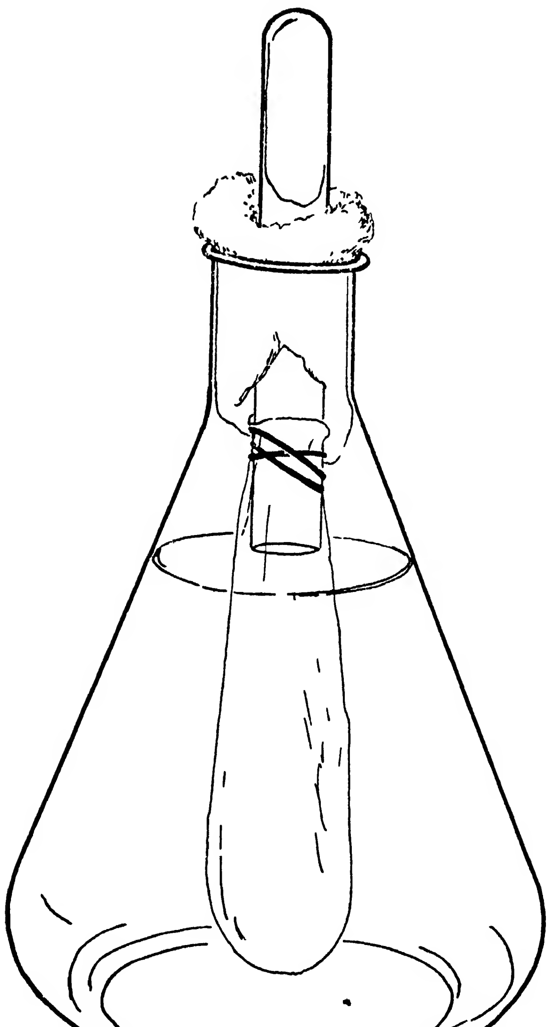

Fig. 17.—Apparatus for irradiation of bacterial culture in collodion sac surrounded by nutrient broth.

At the end of this period there was a heavy growth of organisms (pea soup in consistency) on the inside of each sack. The broth in the flasks surrounding the sacks remained clear and proved to be sterile on subsequent tests.

Repeated transplants were made from the organisms at the bottom of each sack and were diluted sufficiently to yield single isolated colonies on agar. In no instance was any growth obtained other than the pure *S. scarlatinae* and *E. typhi.*

This test demonstrates the extreme resistance of these bacterial strains to continuous irradiation for a period of 30 days and is interesting when compared with the statements of geneticists (Hanson and Hays, 1928) and (Oliver, 1930) that, in the irradiation of *Drosophila*, a doubling of the time of exposure doubled the number of mutations.

DISCUSSION

Our results would seem, at first, to suggest that bacteria are more insensitive to radium emanations than higher forms, in which there has been found a definite correlation between frequency of mutation and intensity and time of irradiation. However, we must remember that bacteria have apparently no morphologically definite chromosomes and the nucleus is assumed to be in the disperse form. In the absence of chromosomes there is no reason to assume any definite fixed order of the genic units such as occurs in the chromosomes of higher forms These structural differences between bacterial cells and the cells of higher forms may account, in part, for the apparent random distribution of mutations which was actually observed. Furthermore, bacteria have no mechanism comparable to mitosis, which serves to insure both quantitative and qualitative equal distribution of the nuclear material to the daughter cells.

It should be emphasized that (*a*) the mutations observed in this research are not necessarily criteria of the actual number of mutations which occur nor of the ratio in which these mutations occur. (*b*) In bacterial cells with a disperse nucleus and no sexual reproduction it is impossible to be certain as to whether a given "mutation" is such in the sense ordinarily used, since it may be cytoplasmic and not a nuclear change. That cytoplasmic changes may be heritable until sexual reproduction intervenes has been shown by Jollos (Jollos, 1914). (*c*) In the higher organisms, e. g., *Drosophila*, by far the greater number of mutations are lethal. They may be demonstrated through breeding, but such a demonstration is probably impracticable if not impossible with bacteria.

At the present stage of our work we refrain from drawing any definite conclusions or making any generalizations. Much more work is needed. The data, however, have encouraged us to attempt

to employ a similar technique in the study of various organisms higher than bacteria in the biological scale which possess different types of nuclear structure in order to ascertain whether the type of result is, in fact, correlated with the nuclear morphology as here suggested.

SUMMARY

1. A graphic representation of the killing effect of the beta as compared with the gamma rays of radium is presented.

2. Evidence is also presented that irradiation of bacteria over many generations may induce at times (6 out of 20 tests), but not regularly, profound cultural and morphological changes.

3. Continuous irradiation of the same culture for 30 days produced no genetic changes. Five tests in contamination-proof boxes yielded no changes.

4. Irradiation of bacteria does not induce genetic changes as frequently as does irradiation of certain higher forms.

5. The probable reasons for this disparity are discussed.

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A TECHNIQUE WHICH COMPLETELY EXCLUDES AIR CONTAMINATION OF BACTERIAL CULTURES

By R. R. Spencer, *Senior Surgeon, United States Public Health Service*

Even in specially equipped rooms with filtered air, one can never be absolutely sure that an occasional organism does not get into cultures when transfers are made in the open. A dust particle or spore may lodge on the wet wire loop during the process of transferring, or there is the possibility that organisms may reach the culture from the skin of the hands, from the hair, or from droplets in the expired air of the operator while talking, sneezing, or coughing.

Whenever a cotton plug is removed from any tube of bacterial culture media one runs the risk of contaminating the tube with air organisms.

For this reason, and because it was desired to carry out certain types of experiments in which it was necessary to exclude completely all possibility of air contaminations, we have developed the simple glass box apparatus described below. It has proved very satisfactory. Indeed we have succeeded in transferring pure cultures daily for several months (twice as long as 6 months) in this box, in which there were just as many sterile control broth tubes with stoppers off exposed to the air of the box as there were experimental tubes. Never have we had any contaminations develop in the control tubes unless the apparatus was improperly set up.

Figure 1 shows a diagram of the box, with dimensions, and figure 2 is a photograph of the box in use.

DESCRIPTION OF APPARATUS AND TECHNIQUE

Heat-resistant obstetrical gloves, with long gauntlets are placed over the 5-inch flanges at each end after the necessary media, forceps, and transfer needles have been placed in the box. Experience soon taught us that it was necessary to place a small amount of cotton between the outer edge of the flanges and the rubber gloves, the gauntlet ends of which are stretched over the flanges and secured by elastic rubber bands. The elasticity of the gloves alone is not sufficient to hold them in place when the hands are thrust in. The chimney at the top of the box is plugged with cotton and the apparatus is ready for autoclaving at 15 pounds pressure as long as necessary.

After the box has been sterilized and permitted to cool, one tube of the media can be inoculated through the chimney. In doing this, care should be taken to bring the tube very close up to the chimney before its cotton or rubber stopper is removed, and then the gloved hand which holds the tube to be inoculated should not be moved until after the cotton stopper of the chimney is again in place. Thus is prevented the suction of outside air into the box. After this first

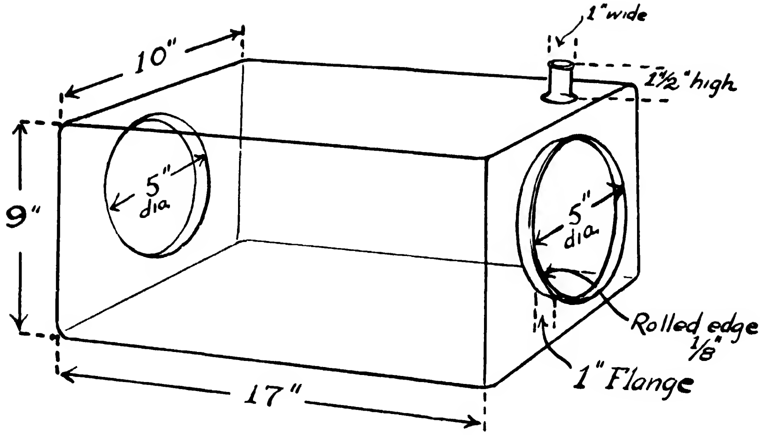

FIGURE 1 Diagram showing dimension of box

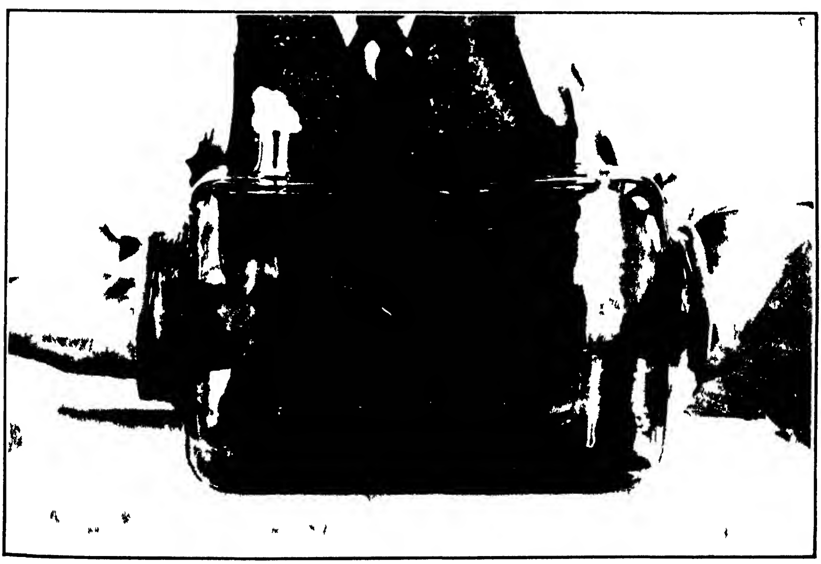

FIGURE 2—Photograph showing box in use

inoculation the box is never opened again until the experiment is completed.

Metal racks holding 40 to 60 homeopathic vials containing plain broth media have been employed. The apparatus does not lend itself readily to the use of solid media or plates if the experiment is long in duration, since solid media dries very rapidly and plates are not as easily manipulated as vials placed in racks. The vials may be left open or kept closed with rubber stoppers as desired. An equal number of sterile control tubes should be kept open throughout the experiment. Occasionally one of these uninoculated control tubes have shown a growth which subsequently proved to be the organism under test and was due to carelessness in making transfers. In no instance have we found extraneous organisms in any tubes.

We have found it impossible to use spore-bearing molds on solid media. The bellows action of the gloves when the hands are thrust into them sets up air currents which distribute the spores to every plate. Thus, liquid media is always to be preferred.

Because of its rather limited usefulness, this pyrex glass box is not on the market. It was manufactured on special order.[1]

Prior to the use of the glass boxes we had tried copper boxes with glass windows but found them unsatisfactory, because frequent sterilization soon produced air leaks in the aquarium cement used to seal the glass to the copper.

DEATHS DURING WEEK ENDED NOV. 2, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 2, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,842	7,590
Deaths per 1,000 population, annual basis	10.9	10.6
Deaths under 1 year of age	510	597
Deaths under 1 year of age per 1,000 estimated live births	47	56
Deaths per 1,000 population, annual basis, first 44 weeks of year	11.3	11.3
Data from industrial insurance companies:		
Policies in force	67,661,227	67,051,927
Number of death claims	11,473	11,460
Death claims per 1,000 policies in force, annual rate	8.8	8.9
Death claims per 1,000 policies, first 44 weeks of year, annual rate	9.6	9.9

[1] The name of the manufacturer will be supplied on request.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Nov. 9, 1935, and Nov. 10, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 9, 1935, and Nov. 10, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934
New England States:								
Maine	2	2			106	20	0	0
New Hampshire							0	0
Vermont	1				21		0	0
Massachusetts	8	19			82	65	0	1
Rhode Island		1			4		0	0
Connecticut	2	8	1		32	145	0	0
Middle Atlantic States:								
New York	39	41	[1] 5	[1] 18	411	544	9	2
New Jersey	10	17	6	5	12	26	0	1
Pennsylvania	39	69			73	347	5	3
East North Central States:								
Ohio	69	54	2	5	56	130	1	1
Indiana	105	69	31	19	9	85	3	0
Illinois	103	98	12	8	13	180	9	2
Michigan	7	25	1	4	26	60	1	0
Wisconsin	6	6	42	4	52	144	1	0
West North Central States:								
Minnesota	20	8		1	39	59	0	0
Iowa	16	13	2	2	6	46	2	1
Missouri	82	57	64	30	9	74	4	0
North Dakota	1	8			13	68	0	0
South Dakota	1	1				10	2	0
Nebraska	6	1		4	13	2	0	1
Kansas	12	16		2	4	45	4	0
South Atlantic States:								
Delaware	1	2			29		0	0
Maryland [2]	13	29	6	7	2	37	2	0
District of Columbia	18	11	1	1	2	1	2	1
Virginia	86	99			18	124	1	4
West Virginia	48	58	10	51	3	48	1	0
North Carolina [3]	105	96	8	4	1	38	2	1
South Carolina [3]	13	16	114	221		5	0	0
Georgia [3]	50	49					0	2
Florida	17	11	2			2	1	0
East South Central States:								
Kentucky	68	86	6	12	44	120	0	4
Tennessee [2]	54	36	22	24		9	2	0
Alabama [3]	37	43	35	41		12	2	0
Mississippi [2]	21	27					1	0

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 9, 1935, and Nov. 10, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934
West South Central States:								
Arkansas	20	33	2	31	3	1	0	1
Louisiana	23	31	13	7	13	2	3	1
Oklahoma [4]	18	14	15	37	4	2	5	0
Texas [3]	178	73	137	179	12	44	0	1
Mountain States:								
Montana	3	9	5	8	15	72	1	0
Idaho					8		0	0
Wyoming	2	2			13	2	0	0
Colorado	11	3		1	2	134	1	0
New Mexico	8	9	3			31	0	0
Arizona		3	15	4			1	0
Utah [2]					4	14	0	0
Pacific States:								
Washington	3	1		1	49	99	0	0
Oregon	1		24	17	97	4	0	0
California	54	49	32	18	154	152	5	0
Total	1,384	1,303	616	766	1,454	3,003	71	27
First 45 weeks of year	30,393	32,567	110,137	55,499	705,615	683,515	4,938	1,901

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934
New England States:								
Maine	6	0	14	30	0	0	1	4
New Hampshire	0	0	4	8	0	0	0	0
Vermont	1	0	4	14	0	0	0	2
Massachusetts	26	3	191	132	0	0	3	3
Rhode Island	3	0	7	7	0	0	0	0
Connecticut	7	0	32	37	0	0	1	0
Middle Atlantic States:								
New York	25	2	330	294	0	0	13	9
New Jersey	12	0	67	74	0	0	1	2
Pennsylvania	3	6	354	408	0	0	13	26
East North Central States:								
Ohio	2	3	242	373	0	0	10	16
Indiana	3	2	162	148	1	5	5	8
Illinois	6	4	451	516	1	0	17	29
Michigan	8	3	155	200	0	0	6	10
Wisconsin	1	1	315	382	15	20	2	2
West North Central States:								
Minnesota	0	6	233	77	0	11	1	0
Iowa	2	2	97	76	3	2	3	3
Missouri	2	2	100	77	2	2	9	12
North Dakota	3	0	40	18	1	0	0	1
South Dakota	0	0	34	11	11	0	0	0
Nebraska	0	1	31	23	9	9	0	2
Kansas	4	4	90	65	6	1	7	8
South Atlantic States:								
Delaware	0	0	19	5	0	0	1	0
Maryland [3]	4	1	93	86	0	0	22	7
District of Columbia	1	0	10	31	0	0	1	1
Virginia	2	1	56	144	0	0	25	9
West Virginia	2	0	146	149	0	0	10	14
North Carolina [3]	1	2	90	97	2	0	19	2
South Carolina [3]	0	2	5	10	0	0	8	8
Georgia [3]	1	0	22	20	0	0	4	7
Florida	0	1	8	9	0	0	0	1
East South Central States:								
Kentucky	8	7	84	121	0	1	12	52
Tennessee [3]	1	1	71	85	0	0	8	9
Alabama [3]	0	1	23	18	0	0	5	3
Mississippi [3]	0	0	19	27	0	0	5	10

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 9, 1935, and Nov. 10, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934	Week ended Nov. 9, 1935	Week ended Nov. 10, 1934
West South Central States:								
Arkansas	1	0	10	23	1	1	4	13
Louisiana	4	1	17	25	0	0	14	12
Oklahoma [4]	1	0	14	20	0	4	15	10
Texas [3]	4	4	78	44	0	0	25	47
Mountain States:								
Montana	0	5	161	12	34	0	0	4
Idaho	0	1	54	9	0	1	7	2
Wyoming	0	0	16	25	1	1	2	0
Colorado	0	0	106	123	4	3	1	2
New Mexico	0	0	15	29	0	0	22	29
Arizona	0	0	28	21	0	0	0	12
Utah [2]	0	0	69	29	0	0	0	1
Pacific States:								
Washington	3	16	72	43	25	22	0	3
Oregon	0	4	45	57	0	0	2	1
California	8	26	235	163	0	1	14	13
Total	155	112	4,519	4,401	116	84	318	409
First 45 weeks of year	10,147	6,871	211,969	178,988	5,874	4,332	15,996	18,920

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Typhus fever: North Carolina, 1; South Carolina, 2; Georgia, 13; Tennessee, 1; Alabama, 9; Texas, 1.
[4] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October 1935										
Connecticut	1	26	6	1	225		67	138	0	11
Delaware	1	2		1	158		0	29	0	14
Georgia	7	147	54	415	5	8	3	111		62
Indiana	8	470	103	2	50		13	622	6	26
Iowa	4	75	7		7		13	353	24	33
Missouri	15	307	198	89	76	1	8	506	8	54
New Mexico	1	35	5	7	28	2	0	57	0	112
North Carolina	11	448	31		8	53	28	386	1	53
Vermont		8			138		17	40	0	2
Wyoming	3	8			64		0	82		0

October 1935

	Cases
Chicken pox:	
Connecticut	183
Delaware	85
Georgia	5
Indiana	226
Iowa	149
Missouri	124
New Mexico	53
North Carolina	90
Vermont	194
Wyoming	40
Conjunctivitis, infectious:	
Connecticut	3
Georgia	9
New Mexico	1
Dengue:	
Georgia	4
Dysentery:	
Connecticut (amoebic)	1
Connecticut (bacillary)	8
Georgia (amoebic)	7
Georgia (bacillary)	4
Missouri	21
New Mexico (amoebic)	2
New Mexico (bacillary)	4
New Mexico (unspecified)	4
Epidemic encephalitis:	
Indiana	1
Iowa	1
New Mexico	1
Favus:	
Connecticut	1
Food poisoning:	
New Mexico	1
German measles:	
Connecticut	25
Iowa	1
New Mexico	1
North Carolina	9
Vermont	20
Hookworm disease:	
Georgia	404
Impetigo contagiosa:	
Iowa	11

October 1935—Continued

	Cases
Mumps:	
Connecticut	82
Deleware	4
Georgia	27
Indiana	76
Iowa	219
Missouri	83
New Mexico	55
Wyoming	13
Ophthalmia neonatorum:	
Connecticut	1
North Carolina	3
Paratyphoid fever:	
Georgia	1
North Carolina	4
Puerperal septicemia:	
New Mexico	3
Rabies in animals:	
Missouri	1
Rabies in man:	
North Carolina	1
Screw worm infection:	
Georgia	1
Rocky Mountain spotted fever:	
North Carolina	1
Septic sore throat:	
Connecticut	7
Georgia	19
Iowa	1
Missouri	43
New Mexico	6
North Carolina	13
Wyoming	1
Tetanus:	
Connecticut	1
Georgia	1
Missouri	1
New Mexico	1
Trachoma:	
Missouri	25
North Carolina	1
Trichinosis:	
Connecticut	4
Tularaemia:	
Georgia	2
Iowa	1
Missouri	1
Typhus fever:	
Georgia	46
North Carolina	2
Undulant fever:	
Connecticut	6
Delaware	1
Georgia	2
Indiana	1
Iowa	11
Missouri	3
New Mexico	1
North Carolina	1
Vermont	3
Whooping cough:	
Connecticut	109
Delaware	5
Georgia	21
Indiana	109
Iowa	85
Missouri	76
New Mexico	36
North Carolina	133
Vermont	130
Wyoming	21

WEEKLY REPORT FROM CITIES

City reports for week ended Nov. 2, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	0	4	1	0	1	1	3	21
New Hampshire:											
Concord	0	------	0	0	1	0	0	0	0	0	5
Nashua	0	------	------	0	------	1	0	------	0	0	------
Vermont:											
Barre	0	------	0	0	0	0	0	0	0	0	2
Burlington	0	------	0	0	0	0	0	0	0	0	9
Rutland	0	------	0	0	0	3	0	0	1	0	11
Massachusetts:											
Boston	2	------	2	1	17	31	0	8	0	5	193
Fall River	2	------	0	0	3	4	0	2	1	0	31
Springfield	0	------	0	0	1	0	0	3	0	11	30
Worcester	0	------	0	0	3	20	0	0	0	0	35
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	13
Providence	2	------	0	0	4	10	0	2	0	3	65
Connecticut:											
Bridgeport	1	1	0	0	2	0	0	0	1	0	22
Hartford	1	------	0	0	4	1	0	0	0	11	53
New Haven	0	------	1	0	0	0	0	1	0	10	38
New York:											
Buffalo	1	------	0	15	12	33	0	6	0	3	144
New York	28	8	1	48	92	71	0	76	8	108	1,332
Rochester	0	------	0	3	8	3	0	0	0	5	76
Syracuse	0	------	0	1	5	8	0	1	1	15	53
New Jersey:											
Camden	1	1	0	0	1	3	0	1	0	2	23
Newark	0	------	0	0	6	21	0	10	0	16	87
Trenton	1	------	0	0	1	2	0	0	0	3	38
Pennsylvania:											
Philadelphia	3	2	1	27	32	86	0	19	1	82	426
Pittsburgh	1	2	0	4	11	58	0	6	0	25	150
Reading	0	------	0	1	2	4	0	1	0	2	35
Scranton	0	------	------	0	------	1	0	------	0	0	------
Ohio:											
Cincinnati	11	0	2	4	13	16	0	5	0	17	129
Cleveland	7	19	1	2	11	21	0	9	1	25	176
Columbus	12	2	2	1	1	17	0	4	0	2	90
Toledo	0	------	0	0	4	6	0	1	0	14	61

City reports for week ended Nov. 2, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Indiana:											
Anderson	0	------	0	0	1	7	0	0	0	0	10
Fort Wayne	13	------	0	0	3	9	0	0	0	0	32
Indianapolis	9	------	0	1	10	21	0	5	0	13	93
Muncie	0	------	0	4	2	0	0	0	0	0	15
South Bend	0	------	0	0	2	2	0	0	0	1	23
Terre Haute	0	------	0	0	0	3	0	0	0	0	22
Illinois:											
Alton	8	------	0	0	1	7	0	0	0	0	12
Chicago	9	4	1	10	31	130	0	31	1	72	644
Elgin	0	------	0	0	1	5	0	0	0	0	13
Moline	0	------	0	0	0	0	0	0	0	0	9
Springfield	0	------	0	0	4	1	0	0	0	2	25
Michigan:											
Detroit	11	------	2	2	20	34	0	15	3	129	254
Flint	0	------	0	2	0	9	0	0	0	4	20
Grand Rapids	0	------	1	1	0	5	0	0	0	9	29
Wisconsin:											
Kenosha	0	------	0	0	0	8	0	0	0	15	8
Milwaukee	0	1	1	0	1	41	0	6	0	53	101
Racine	0	------	0	1	0	28	0	0	0	8	11
Superior	1	------	0	0	0	4	0	0	0	2	8
Minnesota:											
Duluth	0	------	0	0	0	1	0	0	0	1	21
Minneapolis	5	------	0	2	7	83	0	0	0	5	84
St. Paul	0	------	0	0	4	28	0	1	0	1	52
Iowa:											
Cedar Rapids	0	------	0	0	0	3	0	0	0	1	------
Davenport	0	------	------	2	------	5	0	------	0	0	------
Des Moines	0	------	------	0	------	13	0	------	0	1	21
Sioux City	0	------	------	1	------	3	0	------	0	0	------
Waterloo	5	------	------	0	------	7	0	------	0	0	------
Missouri:											
Kansas City	3	------	0	1	11	12	0	7	0	0	118
St. Joseph	13	------	0	0	1	1	0	0	0	0	33
St. Louis	19	------	------	2	4	30	0	5	1	3	214
North Dakota:											
Fargo	0	------	0	2	1	7	0	0	0	0	5
Grand Forks	0	------	------	2	------	0	0	------	0	0	------
Minot	0	------	0	3	0	0	0	0	0	0	4
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	0	------
Nebraska:											
Omaha	9	0	------	0	3	18	1	2	0	0	61
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	6
Topeka	0	------	0	0	6	1	0	0	0	1	37
Wichita	0	------	0	0	4	3	0	2	0	0	23
Delaware:											
Wilmington	0	------	0	0	5	3	0	0	0	1	24
Maryland:											
Baltimore	1	1	1	4	17	32	0	7	1	19	197
Cumberland	2	------	0	0	0	1	0	0	0	0	15
Frederick	0	------	0	0	1	0	0	0	0	0	4
District of Col.:											
Washington	24	2	0	0	12	6	0	11	0	3	145
Virginia:											
Lynchburg	1	------	------	------	1	2	0	1	0	2	16
Norfolk	3	------	0	0	3	2	0	1	0	0	24
Richmond	2	------	0	0	6	4	0	0	0	0	58
Roanoke	2	------	0	0	2	3	0	0	0	0	19
West Virginia:											
Charleston	2	------	0	1	2	4	0	0	0	5	26
Huntington	3	------	------	0	------	13	0	------	0	0	------
Wheeling	1	------	1	0	2	5	0	0	1	0	16
North Carolina:											
Gastonia	1	------	0	0	0	1	0	0	0	0	2
Raleigh	0	------	0	0	0	1	0	1	0	0	9
Wilmington	1	------	1	0	1	0	0	3	0	3	14
Winston-Salem	3	------	0	1	1	9	0	1	0	0	14
South Carolina:											
Charleston	0	3	0	0	3	1	0	0	0	0	25
Columbia	------	------	------	------	------	------	------	------	------	------	------
Florence	0	------	0	0	2	0	0	0	0	0	12
Greenville	1	------	0	1	1	1	0	0	0	2	16

City reports for week ended Nov. 2, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Georgia:											
Atlanta	1	1	0	0	8	12	0	4	3	0	87
Brunswick	0	------	0	0	1	0	0	1	0	0	2
Savannah	2	3	0	0	2	5	0	0	1	1	33
Florida:											
Miami	1	------	0	0	1	0	0	1	0	0	31
Tampa	8	------	0	0	0	1	0	0	0	0	25
Kentucky:											
Ashland	3	------	------	0	------	2	0	------	0	0	------
Covington	0	------	0	1	1	2	0	0	0	0	13
Lexington	0	------	0	0	1	1	0	1	1	0	21
Louisville	4	------	0	2	4	14	0	6	3	1	69
Tennessee:											
Knoxville	5	------	0	0	2	1	0	1	0	0	29
Memphis	4	------	2	0	5	7	0	5	0	3	67
Nashville	0	------	1	0	3	5	0	0	1	0	65
Alabama:											
Birmingham	3	1	1	0	1	5	0	4	2	0	57
Mobile	3	------	0	0	1	1	0	2	0	0	25
Montgomery	1	------	------	0	------	1	0	------	0	1	------
Arkansas:											
Fort Smith	2	------	------	0	------	1	0	------	0	0	------
Little Rock	0	------	0	0	4	1	0	1	0	0	6
Louisiana:											
Lake Charles	0	------	0	0	1	0	0	0	0	0	7
New Orleans	6	------	0	0	7	6	0	9	0	10	143
Shreveport	0	------	0	0	3	1	0	0	0	0	24
Oklahoma:											
Oklahoma City	2	------	0	0	1	5	0	0	0	2	52
Texas:											
Dallas	11	------	0	0	4	8	0	3	0	1	62
Fort Worth	12	------	------	0	------	6	0	3	------	0	26
Galveston	3	------	0	0	0	0	0	2	0	0	14
Houston	11	------	0	0	9	3	0	5	0	0	67
San Antonio	2	------	2	0	1	2	0	10	0	0	61
Montana:											
Billings	0	------	0	1	0	3	0	0	0	9	7
Great Falls	0	------	0	0	1	1	0	0	0	6	5
Helena	0	------	0	0	0	0	0	0	0	0	1
Missoula	0	------	0	0	1	22	1	0	0	0	5
Idaho:											
Boise	0	------	0	0	1	3	0	0	0	0	8
Colorado:											
Colorado Springs	0	------	0	0	3	7	0	1	0	9	15
Denver	6	------	0	3	6	18	0	11	0	3	97
Pueblo	0	------	0	0	1	16	0	0	0	0	15
New Mexico:											
Albuquerque	0	------	0	0	2	2	0	1	1	0	14
Utah:											
Salt Lake City	0	------	0	0	2	24	0	0	0	10	20
Nevada:											
Reno	------	------	------	------	------	------	------	------	------	------	------
Washington:											
Seattle	0	------	------	1	6	10	0	1	0	3	90
Spokane	2	------	------	7	4	0	2	------	0	1	46
Tacoma	0	------	0	1	0	6	0	1	0	0	27
Oregon:											
Portland	0	------	2	2	2	9	0	1	1	2	72
Salem	0	------	------	0	------	2	0	------	0	0	------
California:											
Los Angeles	12	12	0	24	23	33	0	0	0	11	314
Sacramento	12	------	0	0	1	21	0	1	0	5	25
San Francisco	2	1	0	27	7	15	0	8	1	24	151

City Reports for week ended Nov. 2, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Vermont:			
Burlington	1	1	0
Massachusetts:			
Boston	1	0	12
Fall River	0	0	2
Springfield	0	0	1
Worcester	0	0	3
Rhode Island:			
Providence	0	1	0
Connecticut:			
New Haven	0	0	1
New York:			
New York	4	6	10
Syracuse	0	0	2
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	2	1	1
Ohio:			
Cincinnati	[illegible]	0	0
Indiana			
Muncie	1	1	0
Illinois:			
Alton	0	2	0
Chicago	1	0	0
Springfield	1	0	0
Michigan:			
Detroit	0	0	3
Flint	1	0	0
Iowa:			
Sioux City	1	0	0
Missouri:			
Kansas City	0	0	1
St. Louis	2	0	1

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Nebraska:			
Omaha	1	0	0
Maryland:			
Baltimore	3	0	0
District of Columbia:			
Washington	2	0	1
Virginia:			
Richmond	0	1	[illegible]
South Carolina:			
Charleston	0	1	0
Georgia:			
Atlanta	1	0	0
Kentucky:			
Louisville	0	0	1
Alabama:			
Birmingham	1	0	0
Louisiana:			
New Orleans	1	1	0
Oklahoma:			
Oklahoma City	0	1	0
Montana:			
Missoula	1	0	0
Colorado:			
Colorado Springs	0	0	1
Utah.			
Salt Lake City	0	0	1
Washington.			
Seattle	2	2	0
Spokane	1	0	0
California:			
Los Angeles	2	1	3
San Francisco	1	0	0

Epidemic encephalitis.—Cases: Chicago, 1; Sacramento, 1.
Pellagra.—Cases: Winston-Salem, 2, Charleston, S. C., [illegible]; Atlanta, 1; Savannah, 1; Louisville, 1; Los Angeles, 1.
Typhus fever.—Cases. Atlanta, 1; Tampa, 1.

FOREIGN AND INSULAR

BRITISH WEST INDIES

Barbados—Vital statistics—1934.—Following are vital statistics for Barbados, British West Indies, for 1934:

Number of marriages	1,011	Number of deaths	4,176
Marriages per 1,000 population	11.2	Deaths per 1,000 population	23.04
Number of births	5,380	Deaths under 1 year of age	1,376
Births per 1,000 population	29.44		

CUBA

Habana—Communicable diseases—4 weeks ended October 26, 1935.—During the 4 weeks ended October 26, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	7	3	Tuberculosis	47	4
Malaria	[1] 126		Typhoid fever	[1] 36	10
Measles	4				

[1] Includes imported cases.

Provinces—Notifiable diseases—4 weeks ended October 19, 1935.—During the 4 weeks ended October 19, 1935, cases of certain notifiable diseases were reported in the provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer		2		2	1		5
Diphtheria		2	1	1			4
Hookworm disease						1	1
Leprosy						7	7
Malaria	876	86	48	555	565	449	2,579
Measles		1		4	2		7
Poliomyelitis				2	1	1	4
Scarlet fever	1						1
Tuberculosis	5	12	19	26	24	20	106
Typhoid fever	1	35	6	52	58	10	162

HAWAII TERRITORY

Honolulu—Influenza.—A report dated November 14, 1935, stated that there were on that day about 5,000 cases of influenza in Honolulu, 3,000 of them among school children. The outbreak began about November 1. The disease was of the respiratory type, mild, and no death had been reported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for October 25, 1935, pages 1512-1526 A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued November 29, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

India (French)—Karikal.—During the week ended November 2, 1935, 1 case of cholera was reported at Karikal, French India.

Plague

Hawaii Territory—Hawaii Island—Hamakua District.—Plague-infected rats have been reported in Hamakua District, Hawaii Island, Hawaii Territory, as follows: 1 plague-infected rat at Kukaiau, on October 29 and 1 on October 31, 1935, and 1 plague-infected rat at Paauhau on October 26, 1935.

Smallpox

Iraq—Baghdad.—During the week ended November 2, 1935, 1 case of smallpox was reported at Baghdad, Iraq.

Mexico.—During the month of August 1935, smallpox was reported in Mexico, as follows: Guanajuato State, Leon, 2 cases, 2 deaths; Jalisco State, Guadalajara, 1 case, 1 death; Mexico, D. F., 4 cases, 2 deaths; Mexico City, 31 cases, 12 deaths; Oaxaca State, 23 cases; Puebla State, Puebla, 1 case; San Luis Potosi State, San Luis Potosi, 5 cases, 2 deaths; Vera Cruz State, 2 cases; Vera Cruz, 1 case.

Typhus fever

Mexico.—During the month of August 1935, typhus fever was reported in Mexico, as follows: Coahuila State, 1 case; Guanajuato State, 1 case, 1 death; Leon, 6 cases, 2 deaths; Jalisco State, 7 cases, 1 death; Guadalajara, 1 case, 1 death; Mexico State, 15 cases, 1 death; Mexico, D. F., 4 cases, 2 deaths; Mexico City, 155 cases, 60 deaths; Nayarit State, 2 cases, 6 deaths; Oaxaca State, 6 cases; Puebla State, Puebla, 9 cases, 1 death; Queretaro State, 5 cases, 5 deaths; San Luis Potosi State, 2 cases; San Luis Potosi, 1 case; Sonora State, 4 cases; Vera Cruz State, 5 cases; Vera Cruz, 2 cases, 1 death.

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UNITED STATES TREASURY DEPARTMENT

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ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

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NOVEMBER 29 - - 1935

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

Requests for and communications regarding the PUBLIC HEALTH REPORTS, reprints, or supplements should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C. Subscribers should remit direct to the Superintendent of Documents, Washington, D. C.

Librarians and others should preserve their copies for binding, as the Public Health Service is unable to supply the general demand for bound copies. Indexes will be supplied upon request.

CONTENTS

PUBLIC HEALTH REPORTS

VOL. 50 NOVEMBER 29, 1935 NO. 48

INAUGURATION OF COOPERATIVE HEALTH WORK IN CUBA

Passed Assistant Surg. M. A. Roe, of the United States Public Health Service, has been named traveling representative of the Pan American Sanitary Bureau, and has entered into active cooperation with the National Department of Health of Cuba and the Rockefeller Foundation in making sanitary surveys and in carrying out certain related activities. In connection with this work, Dr. Roe has submitted the following report:

"During the past 5 years, the Republic of Cuba has been emerging from the world-wide depression; more recently, as well, from the effects of the political events of 1933. In the Department of Public Health, officials are attempting not only to repair the immediate damage that has been done during this period of stress, but also to build for the future—to furnish the people of Cuba with the standard of public health administration to which they are entitled. Cooperation from the Pan American Sanitary Bureau and from the Rockefeller Foundation has been requested, thus making available from these organizations such specialized assistance as may be required. With a traveling representative from the Pan American Sanitary Bureau on duty in Cuba, the Bureau is in a position to cooperate not only with the Secretary of Public Health of Cuba, but also with the Rockefeller Foundation. The latter organization is now participating in the activities of the Malaria Commission of Cuba in conjunction with the Finley Institute of Habana. This recent advance of interest taken in public health activities has developed under the sympathetic administration of Dr. Aurelio Ituarte, Secretary of Public Health. Direct liaison between the cooperative agencies has been effected through Dr. Domingo F. Ramos, Director of Public Health of Cuba, who has played an important role in helping to inaugurate the program.

"A general survey of the public health needs of Cuba has been planned. Insofar as possible, this survey will include representative localities in all the provinces. Trips have already been made by interested officials to Pinar del Rio and Santa Clara Provinces. The work done has consisted in making personal contacts with the local health officers, evaluating data having to do with organization and equipment of the local departments, with general sanitary problems,

public health laboratories, sanitation of water supplies, sewage-disposal systems, sanitary nuisances, vital statistics, infectious-disease control, clinics, and similar activities. As many personal inspections as can be made are performed at watersheds, water works, sewer plants, clinics, and other places of sanitary importance A trained sanitary inspector from the Malaria Commission searches the immediate vicinity for the purpose of discovering the distribution and incidence of mosquito breeding, giving special attention to the occurrence of anopheline larvae. As many public schools as practicable, both urban and rural, are visited. Examinations are made of selected groups of pupils for spleen enlargement, as an indication of malarial infection; blood films are also taken when indicated. Tin boxes are left for the collection of fecal specimens in cases in which hookworm disease is evident. The boxes are picked up on the return trip or are mailed to the laboratory at Habana.

"It has been found that practical suggestions can often be applied for correcting sanitary defects as they are encountered in the field. For example, remedial measures can, in some instances, be taken for correcting overlooked contamination of water supplies. It is believed that it will be relatively easy to institute many such procedures for generally improving sanitation of water supplies, methods of excrement disposal, and measures for rodent and mosquito control. In this connection it is hoped that a certain amount of special instruction may be provided local health officers and sanitary inspectors, who, in some instances, owing to unsettled economic conditions, have not had an opportunity to acquire the desired type of training.

"The future holds unlimited promise and opportunity for the practice of public health sanitation and preventive medicine on a high plane of endeavor in Cuba. The problems that now confront health officials, if of a difficult nature, should lend themselves readily to solution with a continuation of the constructive policy of cooperation already adopted. The people of Cuba should be congratulated on the progressive stand that her health officials are taking, with the end in view of satisfying the sanitary needs of the Republic."

INFLUENZA AND PNEUMONIA MORTALITY IN A GROUP OF ABOUT 95 CITIES IN THE UNITED STATES DURING FOUR MINOR EPIDEMICS, 1930-35, WITH A SUMMARY FOR 1920-35 [1]

By Selwyn D Collins, *Principal Statistician*, and Mary Gover, *Associate Statistician, United States Public Health Service*

The influenza epidemic of 1918-19 is generally associated with the extraordinarily high mortality that prevailed during its course. The number of lives lost in the United States alone reached the staggering

[1] From the Office of Statistical Investigations, U S Public Health Service
Some of the data in this paper were published in an article on the epidemic of the winter of 1932-33 (3).

figure of a half-million in excess of the normal expectancy. While these facts are more or less known, the history of respiratory epidemics since the great pandemic is to many either vague or completely unknown. A study of the mortality records since 1918 reveals 10 epidemics of a more or less Nation-wide scope. These 10 outbreaks are estimated to have caused an aggregate mortality from influenza and pneumonia in the United States of about 300,000 in excess of the normal expectancy. The four minor epidemics since 1930 that form the subject of this paper account for about 50,000 of these excess deaths. If all deaths in excess of the normal were counted, the above figures would be considerably increased, because during influenza epidemics exceptionally high rates are recorded for such maladies as heart and kidney ailments, apparently because individuals with chronic diseases become easy victims of influenza (2).

CHARACTER OF DATA AND METHODS OF ANALYSIS

The present paper is based on a record of weekly deaths from influenza and pneumonia from 1930 to August 1935 in groups [2] of cities in nine geographic sections of the United States; the 15½-year period, January 1, 1920, to August 1, 1935, is summarized for the whole group of 95 cities which represent an aggregate population of approximately 30,000,000. This report supplements an earlier one on influenza and pneumonia mortality in the same group of cities for the period 1920–29 (1).

Figure 1 shows weekly death rates from influenza and pneumonia in the whole group of cities from 1920 to 1935. For epidemiological purposes, the study of a record such as that shown by the continuous line in the upper half of this figure requires the determination of some measure of the normal or expected mortality as a base line from which the excess may be computed. In the period covered by the earlier study, 1920–29, no orderly change was apparent in the level of the rates from year to year, but there was an occasional year with exceptionally low mortality. However, the difference was not great enough to make it impracticable to use the same seasonal norm for each of these years. Since 1930 the death rates from nearly all causes, including influenza and pneumonia, have been appreciably lower than in immediately preceding years, so that in deriving a normal or expected rate it becomes necessary to take account of change in level from year to year as well as seasonal variation.

[2] The publication for current weeks, of death rates from influenza and pneumonia in a group of cities and in subgroups in each geographic area was begun in the Public Health Reports for February 8, 1924 (data from Jan. 1) and was continued to August 1932, when a reduction in appropriations for printing made it necessary to discontinue the printing of these data. Subsequently the rates were carried back to Jan. 1, 1920, for as many of the cities as had available records, and published in a single article covering the decade 1920–29 (1). The present paper brings this record down to August 1935.

The cities include some rather small places; they were selected by Jason Waterman, statistician for the Division of Sanitary Reports and Statistics of the U. S. Public Health Service, to give representation to each geographic section of the United States insofar as it was possible to find cities that reported regularly to the Public Health Service. An earlier report (1) lists the cities.

The methods of deriving the norms both before and after 1930 are summarized in the Appendix (p 1681) for those who are interested in the details of the process. It may be seen in figure 1 that the norm represents reasonably well the usual seasonal variation and the change from year to year, inasmuch as the actual rates in interepidemic periods fluctuate within relatively narrow limits above and below the curve of expected rates.

INFLUENZA AND PNEUMONIA MORTALITY IN THE WHOLE GROUP OF CITIES, 1920 35

In the 15½ years from 1920 to 1935 (fig. 1) there were 10 brief periods in which the mortality from influenza and pneumonia was sufficiently above the seasonal expectancy to consider the prevalence of these diseases as epidemic. Each of the periods of excess mortality coincides with a time when unusually large numbers of cases of influenza were reported to health departments throughout the country.

Four of the outbreaks have occurred since 1929, which was the last year included in the earlier report (1). All four epidemics were of a minor character as compared with those of 1920 and the winter of 1928–29, but two of them (1931 and winter of 1932–33) approximate the magnitude of the intervening smaller epidemics The minor outbreaks of the spring of 1932 and of the winter of 1934–35 occurred at times when mortality was at a low level, and the death rates for the peak weeks hardly reached the level that prior to 1930 would have been considered normal. However, as measured from the general level of mortality at the time of the outbreaks, the periods of excess deaths from influenza and pneumonia in the spring of 1932 and in the winter of 1934–35 are clearly marked.

The best single measure of epidemic mortality is probably the total excess death rate during the whole period when the mortality is above the normal seasonal expectancy. A summation of the excess rates for the various weeks of each outbreak (reducing them from an annual to an actual basis) gives the total excess influenza and pneumonia mortality; these rates are plotted in figure 2. By this measure the epidemic of the winter of 1932–33 falls fifth among the 10 outbreaks that occurred in the 15½-year period. The excess mortality was slightly greater than in the epidemic of 1922 but not as great as in that of 1926 in these same cities. The epidemic of 1931 had a total excess that was slightly less than that of 1922 but greater than the small outbreak of the spring of 1928. The epidemics of the spring of 1932 and of the winter of 1934-35 were the two smallest of the 10 that have occurred since 1920.

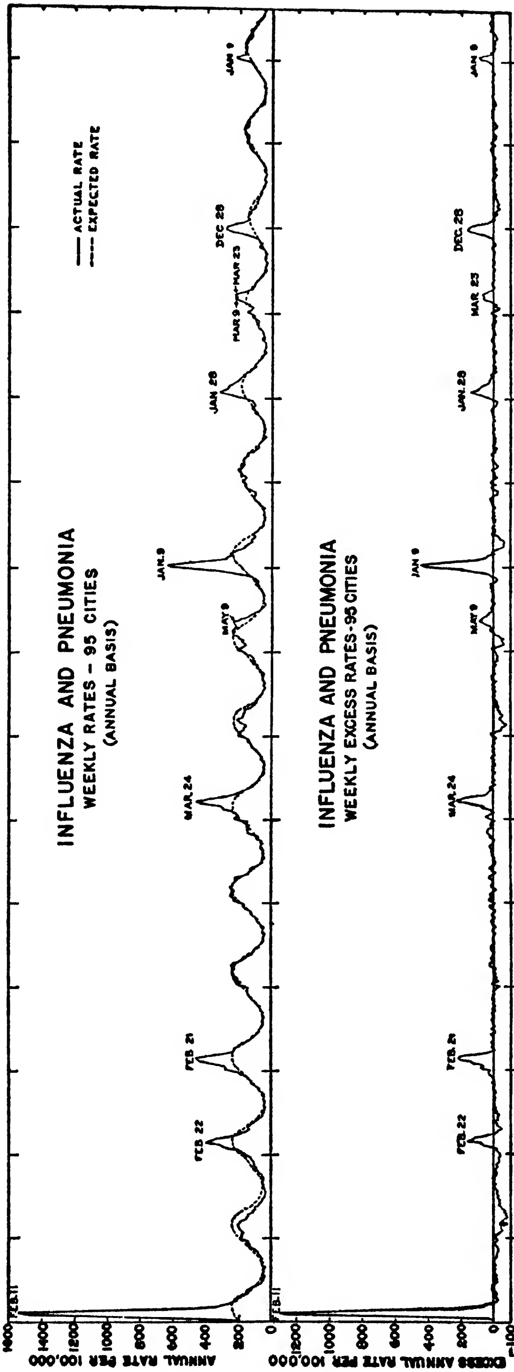

FIGURE 1.—Weekly total and excess mortality from influenza and pneumonia in a group of about 95 cities in the United States, 1920–35. Dates on graph are middle (Wednesday) of peak weeks. (For method of computing excess rates, see Appendix.)

EPIDEMICS SINCE 1930 IN CITIES OF EACH GEOGRAPHIC AREA

Excess influenza and pneumonia mortality was computed for groups of cities in each of the 9 geographic areas of the United States. Figure 3 shows these weekly excess rates from 1928 to 1935 for each region. The chance fluctuations are particularly large in the East and West South Central and the Mountain areas, where the populations under consideration are small; but even in these sections the excess rates during real epidemics stand out clearly above the usual chance variations.

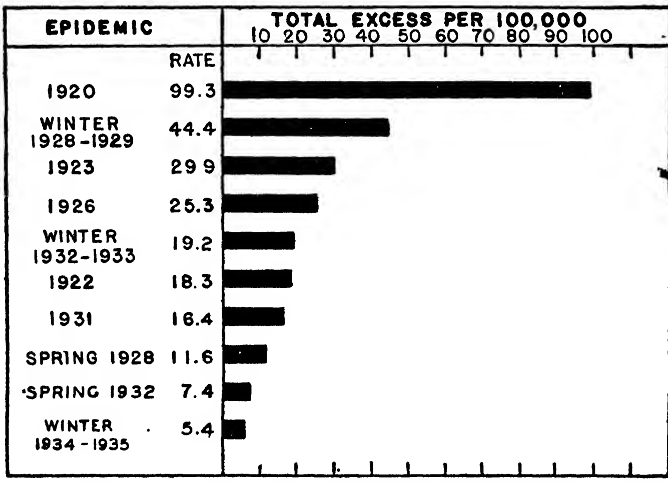

FIGURE 2.—Total excess mortality from influenza and pneumonia during the whole of each epidemic in a group of about 95 cities in the United States, 1920–35. (For method of computing excess rates, see Appendix.)

TABLE 1.—*Total excess* [1] *death rate (actual basis) per 100,000 from influenza and pneumonia during the whole of each epidemic in cities of different geographic sections of the United States, 1920 35*

Epidemic	All cities	New England	Middle Atlantic	South Atlantic	East North Central	East South Central	West North Central	West South Central	Mountain	Pacific
1920	99.3	96.6	95.2	94.2	109.4	99.1	121.9	91.2	159.5	57.7
1922	18.3	29.5	24.7	9.4	11.4	16.0	34.8	14.6	36.2	36.3
1923	29.9	36.6	26.5	42.7	32.2	44.0	53.3	6.7	17.6	11.3
1926	25.3	30.0	41.2	26.2	22.2	38.2	None	58.8	16.8	9.3
Spring 1928	11.6	15.4	20.9	None	17.9	11.9	4.9	13.7	7.7	None
Winter 1928–29	44.4	42.3	43.0	47.6	43.7	92.0	42.8	68.2	68.7	43.0
1931	16.4	13.8	24.3	27.2	9.7	None	14.0	17.7	None	None
Spring 1932	7.4	None	13.5	8.0	4.6	8.6	19.4	7.2	24.1	None
Winter 1932–33	19.2	22.8	18.1	22.1	13.8	33.9	42.7	41.1	34.7	16.7
Winter 1934 35	5.4	8.1	5.3	14.5	6.3	28.3	11.1	10.7	13.4	None

[1] From 1920 to 1929, inclusive, the excess is measured from the median rates for corresponding weeks for the period 1921–27; the series of 52 medians representing the "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-week moving average before the excesses were computed. From 1930 to 1935, inclusive, the excess is measured from "normal" or "expected" rates that are based on means for corresponding weeks for the period 1930–33, rates for obviously epidemic weeks being replaced by interpolations between adjacent nonepidemic weeks before computing the means. See Appendix for further details.

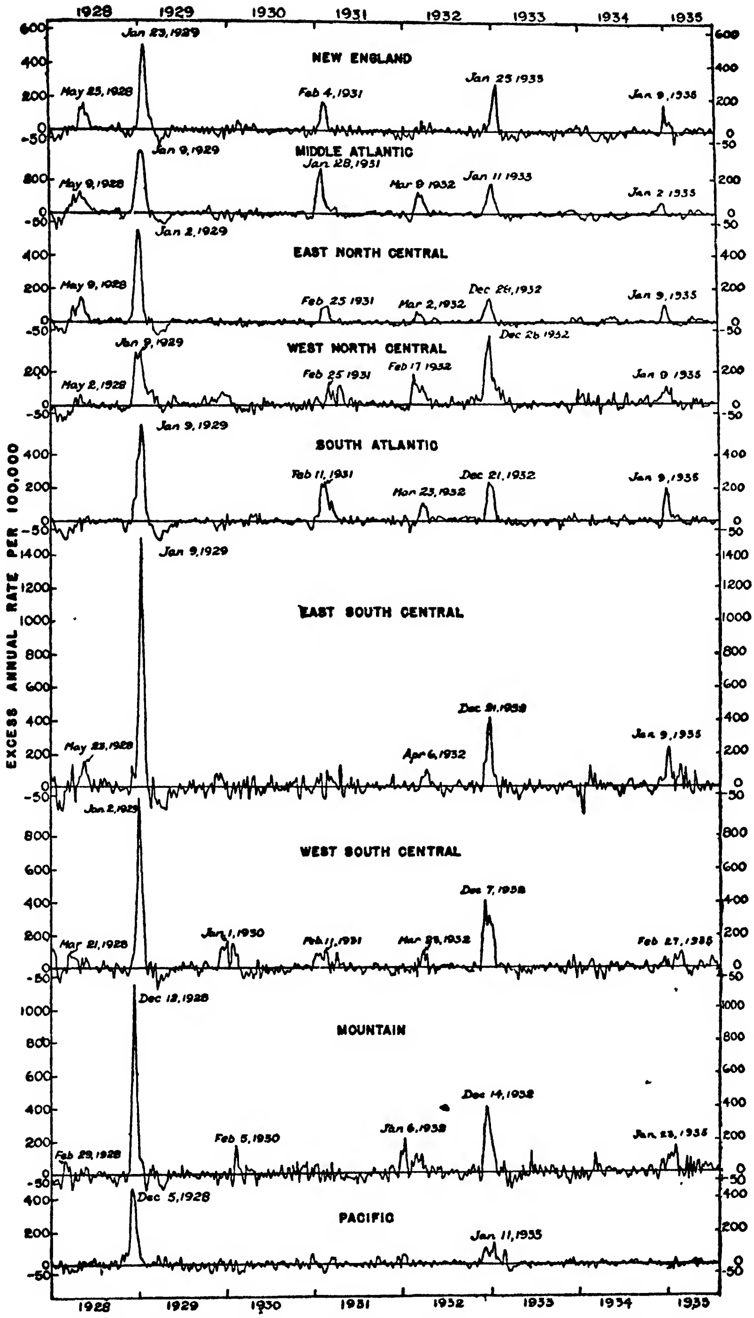

FIGURE 3.—Weekly excess mortality from influenza and pneumonia in a group of cities in each geographic section of the United States, 1928–35. Dates on graph are middle (Wednesday) of peak weeks. (For method of computing excess rates, see Appendix.)

To supplement figure 3, table 1 shows the total excess rates from influenza and pneumonia during the whole of each epidemic in each area. The mortality picture is generally similar in the various regions, but a close examination of the chart and table reveals the following variations in the several areas: (*a*) On the whole the epidemic of 1928–29 is far greater than any since that time; but in one area, the West North Central, the peak rate in the outbreak of 1932 33 exceeded that of 1928–29 and the total excess rates were almost identical. (*b*) In general the epidemic of the winter of 1932–33 was greater than that of 1931, but in the cites of the Middle and South Atlantic regions the latter was larger than the former. (*c*) For the group of cities taken as a whole, the outbreak of the winter of 1934–35 is the smallest one, but the East South Central cities exhibit a total excess rate that equals that of any area in the considerably larger epidemic of 1931. (*d*) Small outbreaks appear in certain sections when there is no indication of an epidemic elsewhere, viz, the West South Central, with a peak in January 1930 when, with the possible exception of a peak in February in the Mountain cities, there is no other indication of an outbreak in 1930. There was also an outbreak in the West South Central cities with its peak in January 1925, when no other region showed a definite epidemic (1); however, both cases and deaths from influenza were reported in 1925 in greater than the usual frequency in other places without a definite peak. These variations suggest that individual cities have minor outbreaks that do not progress to a nation-wide epidemic.

The area of origin and the direction of spread as well as the magnitudes of the epidemics are shown for the four outbreaks since 1930 in figures 4, 5, and 6. The excess rates have been plotted for each geographic area for each epidemic. The sections are arranged in the order of occurrence of the peak mortality as indicated by a 3-week moving average of the weekly excess rates, and a vertical line has been drawn at the estimated peak [3] day for the whole group of 95 cities.

In figure 7 the time of occurrence of the epidemics in each geographic area is illustrated on maps. The areas are shaded from dark to light in the order of the estimated date of the peak mortality. In addition to the estimated modal or peak day, table 2 gives certain other constants of the curves of excess mortality in each epidemic, viz, the dates on which one quarter, one half, and three quarters of the

[3] The estimated peak day is computed from the 3-week moving average curve by an adaptation of the difference formula for calculating the mode in a frequency distribution; see footnote to table 2 for the formula and methods of computation.

excess deaths had occurred, and the interquartile range [4] or the number of days within which the central half of the excess deaths occurred. The weekly excess death rates for each of the 9 areas for the years 1930 to August 1935 are shown in tables 3 to 7 in the Appendix.

In the outbreak of 1931 the West South Central cities were the earliest affected; the excess curve is rather flat, with a maximum, as judged by the moving average, about the middle of January (fig. 4). However, neither the Mountain and Pacific areas to the west nor the East South Central area to the east of the affected region showed any recognizable epidemic, and the small excess in the West North Central section to the north came about six weeks later, at a time that indicated a spread from the east rather than from the south. Aside from this early but small excess in the West South Central region, the 1931 epidemic manifests itself as definitely an east coast outbreak with its origin in the Middle Atlantic region from which it spread to the south, north, and west, but with only small excess rates in the two North Central regions. In the three regions on the Atlantic coast the mortality is definitely above the normal expectancy and the peaks are sharply defined.

The minor outbreak of the spring of 1932 originated in the Mountain section and spread eastward The curve of excess rates for the Mountain area is distinctly bimodal, probably because of the widely scattered cities that represent that region. The Mountain, West North Central, and Middle Atlantic areas had the largest total excess rates, and the Pacific and New England sections showed no evidence of an epidemic.

The outbreak of the winter of 1932-33 was of greater magnitude than the two outbreaks previously described. The West South Central section had the earliest peak, and from there it spread rapidly to the west, east, and north. With the exception of the Pacific area, all regions show sharply defined peaks. The highest total excess mortality occurred in the West North Central and West South Central areas, with high rates also in the Mountain and East South Central sections.

The epidemic of the winter of 1934-35 is characterized by its small size, its definiteness in all areas except the Pacific, and the rapidity of its spread. The Middle Atlantic section attained its peak in the week ending January 5, and five neighboring sections had peak mortalities during the succeeding week. The West South Central and the Mountain areas had later and less definite peaks. The largest total excess rates occurred in the East South Central, South Atlantic, and Mountain regions.

[4] Because of variation in the size of the several regions and in the number and geographic scatter of the cities whose records are included in the data, the interquartile range is not strictly comparable from one section to another However, the usually short interquartile range (generally 2 to 3 weeks) indicates that the majority of the excess deaths take place within a very short period during which the disease is truly epidemic.

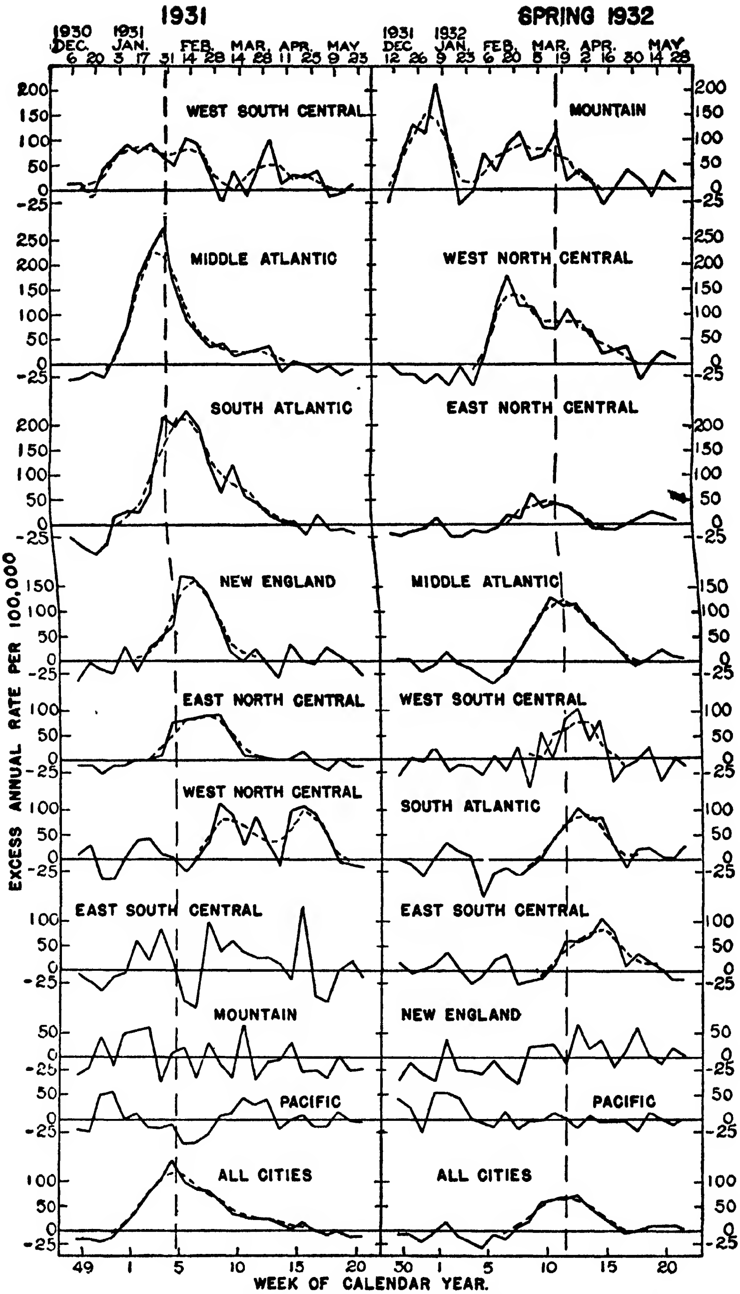

FIGURE 4.—Weekly excess mortality from influenza and pneumonia in a group of cities in each geographic section of the United States during the epidemics of 1931 and of the spring of 1932. Continuous line represents actual excess; broken line, 3-week moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve.

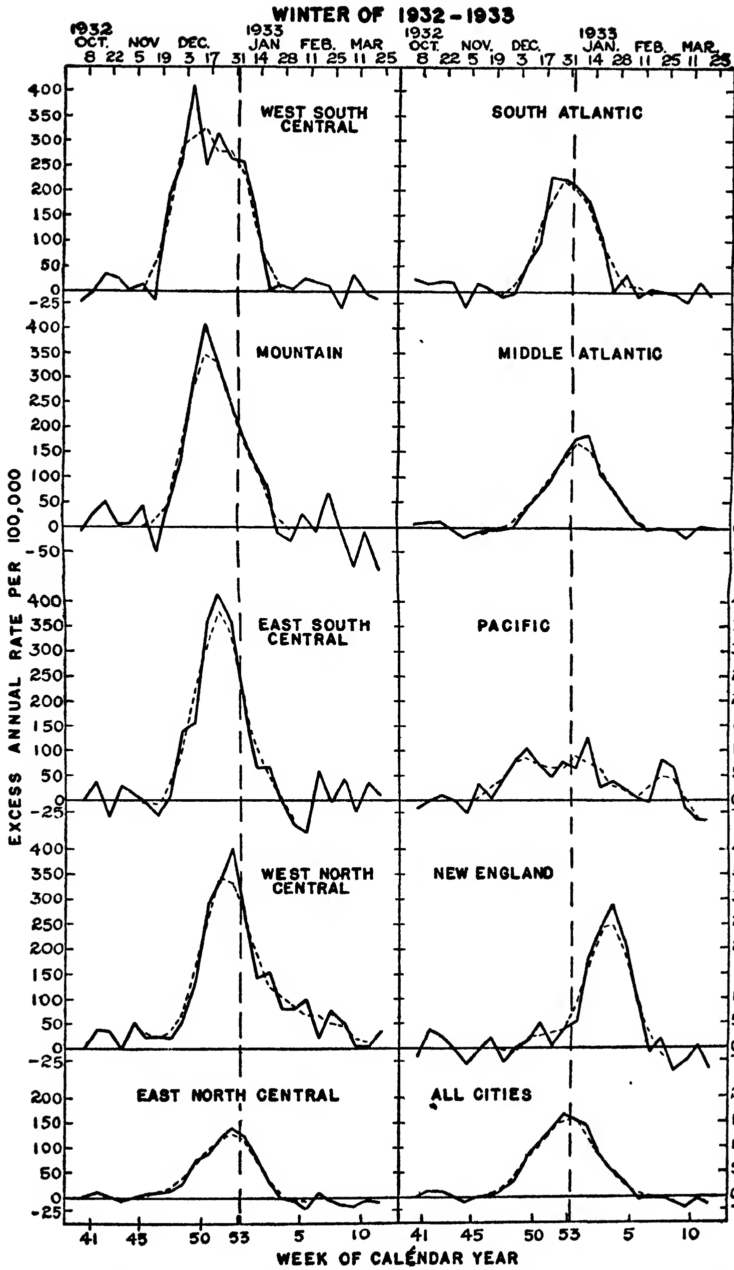

FIGURE 5.—Weekly excess mortality from influenza and pneumonia in a group of cities in each geographic section of the United States during the epidemic of the winter of 1932-33. Continuous line represents actual excess; broken line, 3-week moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve.

TABLE 2.—*Estimated constants of the curves of excess mortality from influenza and pneumonia in epidemics in cities of different geographic sections of the United States, 1930–35*

Year of epidemic and geographic section	Modal or peak day [1]	Day on which the specified proportion of the excess deaths had occurred			Interquartile range (number of days between first and third quartiles)	Total period considered as above normal	
		One-fourth (first quartile) [2]	One-half (median) [2]	Three-fourths (third quartile) [2]		Total number of weeks	Dates (in calendar weeks) of first and last week
1931							
All cities	Jan. 29	Jan. 24	Feb. 4	Feb. 22	29	16	1–16
New England	Feb. 10	Feb. 2	Feb. 9	Feb 17	15	8	3–10
Middle Atlantic	Jan 24	Jan. 19	Jan. 28	Feb. 9	21	14	1–14
South Atlantic	Feb 7	Feb 1	Feb. 12	Feb. 26	25	16	1–16
East North Central	Feb. 16	Feb. 4	Feb. 14	Feb. 24	20	10	3–12
East South Central	------		------	------	------	None	
West North Central	Feb. 28	Mar. 3	Mar. 25	Apr. 16	44	11	8–18
West South Central	Jan. 14	Jan. 13	Feb. 4	Feb. 22	40	[illegible]	52–15
Mountain	------	------	------	------	------	None	
Pacific	------	------	------	------	------	None	
Spring 1932							
All cities	Mar. 16	Mar 6	Mar. 16	Mar. 26	20	9	8–16
New England	------	------	------	------	------	None	
Middle Atlantic	Mar. 15	Mar. 7	Mar. 17	Mar. 28	21	10	8–17
South Atlantic	Mar. 27	Mar. 18	Mar. 25	Apr. 3	16	7	10–16
East North Central	Mar. 9	Mar 2	Mar. 10	Mar. 19	17	7	8–14
East South Central	Apr. 4	Mar 24	Apr 4	Apr. 12	19	10	11–20
West North Central	Feb. 20	Feb. 18	Mar. 3	Mar. 24	35	13	6–18
West South Central	Mar. 26	Mar. 15	Mar. 22	Apr. 1	17	6	10–15
Mountain	Jan. 1	Jan. 3	Feb. 1	Feb. 29	57	17	51–15
Pacific	------	------	------	------	------	None	
Winter 1932–33							
All cities	Jan. 1	Dec. 18	Dec. 30	Jan. 10	23	11	48– 5
New England	Jan. 23	Jan. 13	Jan. 22	Jan. 29	16	10	50– 6
Middle Atlantic	Jan. 5	Dec. 26	Jan. 5	Jan. 14	19	11	49– 6
South Atlantic	Dec. 29	Dec. 22	Dec. 30	Jan. 9	18	9	50– 5
East North Central	Dec. 28	Dec. 14	Dec. 25	Jan. 4	21	12	46– 4
East South Central	Dec. 21	Dec. 13	Dec. 21	Dec. 29	16	9	48– 3
West North Central	Dec. 24	Dec. 18	Dec. 29	Jan. 15	28	15	48– 9
West South Central	Dec. 13	Dec. 5	Dec. 16	Dec 29	24	8	48– 2
Mountain	Dec. 16	Dec. 10	Dec. 18	do.	19	9	48– 8
Pacific	Jan. 5	do.	Jan. 2	Jan. 22	43	15	48– 9
Winter 1934–35							
All cities	Jan. 6	Dec. 30	Jan. 6	Jan. 12	13	9	49– 5
New England	Jan. 11	Jan. 8	Jan 14	Jan. 29	21	7	1– 7
Middle Atlantic	Dec 30	Dec. 18	Dec. 28	Jan. 5	18	9	47– 3
South Atlantic	Jan. 10	Jan. 6	Jan. 12	Jan. 22	16	10	52– 9
East North Central	Jan. 7	Jan. 1	Jan. 7	Jan. 14	13	7	51– 5
East South Central	Jan. 8	Jan. 3	Jan. 15	Feb. 24	52	17	48–12
West North Central	Jan. 6	Dec. 27	Jan. 9	Jan 24	28	14	47– 8
West South Central	Feb. 25	Dec. 31	Feb. 7	Feb 25	56	15	48–10
Mountain	Jan. 26	Dec. 29	Jan. 15	Jan. 29	31	11	48– 6
Pacific	------	------	------	------	------	------	------

[1] The modal or peak day was estimated by interpolation within the modal or peak week (determined by inspection) of the excess death rates by the method of differences, the following formula being used:

$$\text{Mode} = L + \left[\frac{\Delta f_{-1}}{\Delta^2 f_{-1}}\right] \text{ in which—}$$

L = Lower limit of modal class (first day of peak week).

f_0 = Frequency (excess rate) in modal or peak week.

f_{-1} = Frequency (excess rate) in week prior to modal or peak week.

f_{+1} = Frequency (excess rate) in week following modal or peak week.

First and second differences (Δ and Δ^2, respectively) for use in the formula are computed as follows:

$\Delta f_{-1} = f_0 - f_{-1}$.

$\Delta^2 f_{-1} = (f_{+1} - f_0) - (f_0 - f_{-1})$.

The expression in the formula which is added to the lower limit of the modal class always comes out in the form of a fraction or decimal less than unity and is in usual frequency distributions multiplied by the class interval and added to the lower limit of the class. This was adapted to the weekly intervals by reducing this decimal to sevenths; if it was less than one-seventh, the estimated modal day was the first day of the week; if it was between one-seventh and two-sevenths, the modal day was the second day of the week, etc.

The computations are based on the 3-week moving average of the excess rates rather than the actual value.

[2] The median and quartile days were determined in the manner in which those constants are determined for a frequency distribution (the excess rates for this purpose being considered as frequencies).

SUMMARY

Weekly records of mortality from influenza and pneumonia in a group of about 95 cities in the United States indicate 10 epidemic periods in the 15½ years from 1920 to August 1935 (fig. 1). Measured by the total excess mortality from influenza and pneumonia during

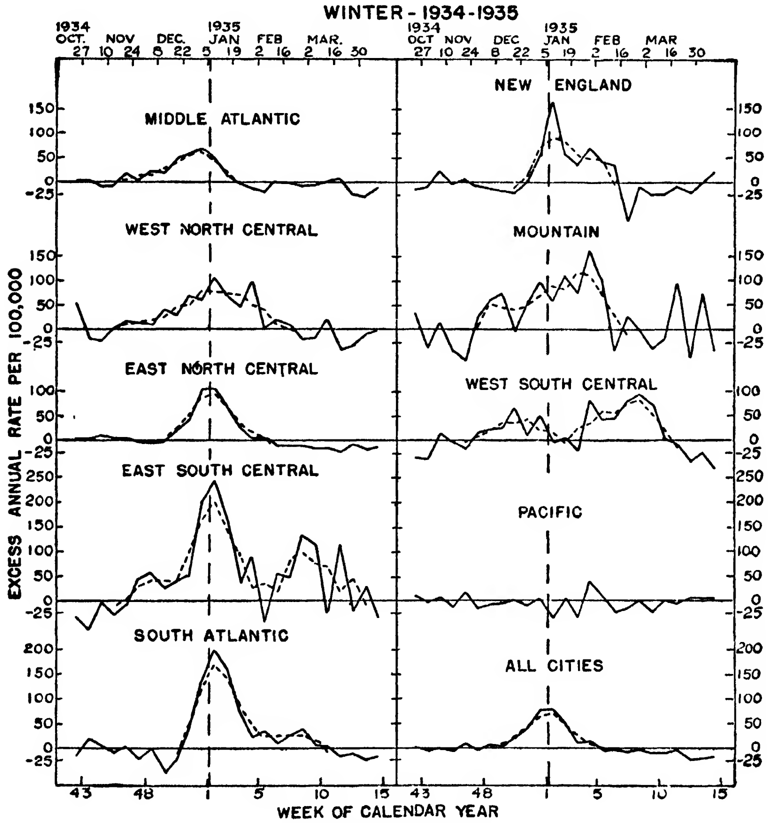

FIGURE 6.—Weekly excess mortality from influenza and pneumonia in a group of cities in each geographic section of the United States during the epidemic of the winter of 1934 35. Continuous line represents actual excess; broken line, 3-week moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve.

the whole epidemic, the largest outbreak in this period was in 1920 and the smallest in the winter of 1934–35 (fig. 2).

The four epidemics in the years 1930–35 are relatively small; those of 1931 and the winter of 1932–33 are about the magnitude of the outbreak of 1922. The epidemics of the spring of 1932 and of the winter of 1934–35 are the smallest of the 10 outbreaks. Although the epidemics since 1930 are small, they are clearly defined in the curves for all cities and in those for the separate geographic sections that were affected.

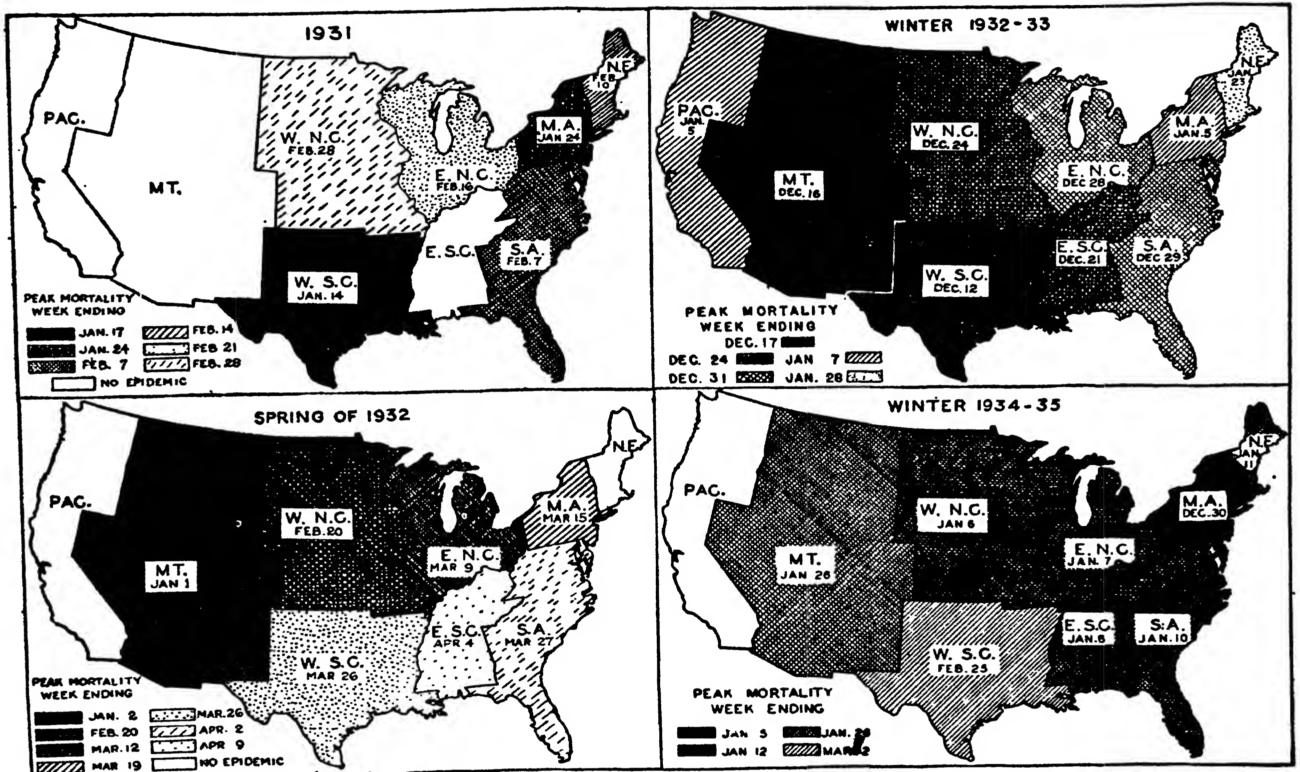

FIGURE 7.—Time of occurrence of peak mortality in 4 influenza epidemics in a group of cities in each geographic section of the United States. (Darkest sectior were first and lightest sections were last to be affected. Dates represent estimated peak days for the sections. For details see footnotes to tabl 2.)

In the epidemic of 1931 the excess rates were highest in the east coast regions, and the Mountain and Pacific sections were unaffected (fig. 4). The outbreak of the spring of 1932 did not affect the Pacific or the New England area (fig. 4). The epidemic of the winter of 1932–33 prevailed in all regions, but the excess rates were low in the Pacific cities (fig. 5). The outbreak of the winter of 1934–35 was largest in the eastern sections, but all areas except the Pacific were definitely affected (fig. 6).

APPENDIX

METHOD OF DERIVING NORMAL OR EXPECTED RATES

The norm used for the years 1920–29 was based on median rates for each week for the 7-year period 1921–27; the 52 weekly medians were smoothed by a 5-week moving average and used for the whole 10-year period without adjustment for change in average annual level of the rates. A more detailed description of the process is included in the earlier paper (1).

Since 1930 the death rates from influenza and pneumonia have been lower than in the preceding decade. The curve of weekly median rates for the period 1921–27 becomes impossible as a norm for the years 1930–34, as it is generally above corresponding weeks of these years except in obviously epidemic periods. Adjustment of the old norm (the series of 52 median rates) to the level of the year under consideration did not make it satisfactory for the new period. It, therefore, seemed advisable to derive a norm from the years following 1929. The analysis was begun before the 1934 data became available, and so there were only 4 years, 3 of which included small epidemics. Under these circumstances a median did not seem feasible. The best solution seemed to be to replace obviously epidemic items by interpolated values and to compute the mean of the rates for corresponding weeks in the 4 years 1930–33. The values substituted for the obviously epidemic rates were obtained by an interpolation between the apparently normal rates just before and after the epidemic periods. The process was to select (by inspection and the aid of the old seasonal curves) the last week preceding the epidemic items and the first week after them that seemed to be approximately normal for the season of the year, and to interpolate on a linear basis between these points. For the whole group of cities, this process involved interpolating between the following weeks:

Winter of 1930–31: From 52d week of 1930 to 11th week of 1931; 10 epidemic weeks replaced by estimated normal values.

Winter of 1931–32: From 8th to 16th week of 1932; 7 epidemic weeks replaced by estimated normal values.

Winter of 1932–33: From 47th week of 1932 to 5th week of 1933; 10 epidemic weeks replaced by estimated normal values.

Although in the 4 years 1930–33 there were 3 epidemics which involved interpolations, they are sufficiently separated in season of occurrence so that interpolated values overlap only 2 weeks as between the first and second epidemics, and only 4 weeks as between the first and third epidemics, while the second and third outbreaks do not overlap at all. Thus there are 6 of the 52 weeks in which 2 of the weekly rates entering into the 4-year average are interpolated values, and 13 other weekly means involving 1 interpolated value and 3 actual values.

The 52 weekly values in these 4-year means obtained as outlined above were smoothed by a 5-week moving average and used as the relative basis for seasonal

expectancy However, adjustment had to be made for the change from year to year in the average annual influenza and pneumonia death rate. For each of the years ending approximately July 31 (31st week) ratios were computed by dividing the mean of the 52 weekly rates for the year (using the interpolated values for the obviously epidemic weeks) by the mean of the 52 weekly values in the seasonal norm. Each of the 52 weekly values in the seasonal norm were then multiplied by this ratio to adjust the level of the seasonal norm to that of the individual years under consideration. Thus, if the mean for the given year was smaller than the mean of the seasonal norm values, the ratio would be less than unity and the norm would be *lowered* to the general level of the nonep'demic rates in the year under consideration. On the other hand, if the mean for the given year was larger than the mean of the seasonal norm values, the ratio would be greater than unity and the norm would be raised to the general level of the nonepidemic rates in the year under consideration. Excess rates were obtained by subtracting these expected rates from the actual rates for corresponding weeks of the year.

Tables 3 to 7 include columns of smoothed mean rates (interpolated values replacing epidemic items), and the footnotes contain for each year the ratios by which these seasonal norms are multiplied to adjust to the general leve' for the year. Thus an expected rate for each week of each year can be computed from the data in the tables, and the actual rates can be obtained by adding algebraically the expected and excess rates or given weeks.

TABLE 3.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1930–1935*

Week of year	About 95 cities[2] in the United States							About 12 cities[2] in the New England States						
	Smoothed mean (1930–33)[3]	1930	1931	1932	1933	1934	1935	Smoothed mean (1930–33)[3]	1930	1931	1932	1933	1934	1935
1	146	+18	+13	−3	+156	+19	+75	136	+26	+27	−47	+53	+51	+48
2	153	+9	+38	+18	+142	+10	+78	136	+26	−21	+35	+183	+29	+160
3	160	−11	+76	−10	+82	−5	+45	141	−25	+25	−23	+245	+35	+53
4	163	−24	+99	−21	+51	−12	+7	144	−17	+43	−28	+289	−9	+31
5	165	−4	+145	−33	+32	−13	+12	146	+25	+70	−32	+217	+3	+65
6	170	−3	+101	−6	0	−16	−5	156	−15	+173	−6	+89	+30	+34
7	175	−6	+84	−14	−3	0	−6	166	+5	+168	−36	−11	+53	+28
8	177	−2	+79	+8	+1	−1	−10	174	+53	+141	−52	+20	+21	−87
9	179	+11	+62	+23	−11	+1	−5	178	+36	+78	+23	−47	−5	−14
10	179	−20	+38	+58	−22	−1	−13	180	+30	+20	+24	−28	−12	−30
11	175	−24	+30	+66	−5	−17	−13	180	−33	−1	+28	+7	−36	−30
12	170	−15	+26	+66	−16	−20	−8	174	+17	+24	−13	−42	−39	−8
13	166	−11	+24	+73	−35	−10	−26	170	+31	−3	+67	−43	−46	−25
14	159	−6	+16	+47	−19	−10	−21	161	+3	−35	+17	−9	−44	−2
15	152	+11	+3	+33	−19	0	−17	155	+14	+34	+38	−28	−8	+23
16	143	+3	+18	+10	−27	+1	−3	148	−4	0	−16	−23	−1	+18
17	135	0	−1	−2	−19	+9	−2	142	+34	−6	+12	−53	+7	+4
18	125	+4	−8	+1	−17	−1	+23	131	+16	+27	+61	−34	−24	+17
19	116	+13	−1	+9	−12	+9	+8	123	−1	+10	+5	−8	−17	−21
20	107	−12	−9	+12	−7	+2	+8	115	−20	−2	−13	+23	−51	+21
21	99	−5	−9	+12	−8	+7	+5	102	−4	−27	+20	−2	−1	−9
22	91	−21	+6	+6	−10	+8	+15	94	−10	+25	+4	−12	+1	+14
23	84	−6	−2	+3	−4	+3	+20	85	−17	+35	+9	−26	−26	+30
24	77	+2	−7	+5	+1	−7	+12	78	+1	−20	+9	+16	−25	+16
25	71	−4	−2	0	−2	−14	+8	67	0	+4	+15	−12	−4	+18
26	65	−4	−2	+1	−1	−9	+3	61	−16	0	+5	+12	−8	−14

[1] Excess over a "normal" or "expected" rate for the corresponding week of the year. For details, see note 3 and the appendix.

[2] See earlier report (1) for a list of the cities in each geographic area. When a city failed to report, its population was deducted from the group total and the rate computed on the remaining population. Because of continued irregularity of reports, Norfolk, Va., Greenville, S. C., Louisville, Ky., and St. Louis, Mo., are omitted from the years 1930-35 and Covington, Ky., is omitted from the years 1933–35.

[3] The series of "smoothed means" shown in tables 3 to 7 for the different geographic areas are based on the means of the 4 weekly death rates for corresponding weeks of the 4 years 1930–33; rates for obviously epidemic weeks were replaced by interpolations between adjacent nonepidemic weeks before computing the means. The 52 weekly means were then smoothed by a 5-week moving average. To adjust these smoothed means to the level of the rates in a given year and obtain the series of weekly "normal" or "expected" rates used for that year, multiply the smoothed means by the following factors:

Table 3.—*Excess weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1930–1935*—Continued·

Week of year	About 95 cities in the United States: Smoothed mean (1930–33)	1930	1931	1932	1933	1934	1935	About 12 cities in the New England States: Smoothed mean (1930–33)	1930	1931	1932	1933	1934	1935
27	59	−9	+1	+1	−4	−8	+3	56	−28	−21	+4	−3	+18	−10
28	55	−5	+1	−1	+3	−1	+7	50	−13	+30	+2	0	+12	+1
29	52	−13	−9	−2	−3	−2	+2	47	−15	+2	+33	+5	+11	+26
30	50	+2	−11	+5	+2	+8	0	47	−10	−17	+16	−9	−8	0
31	49	−3	−4	+4	+9	+1	−5	44	−9	−2	−4	+21	−22	−14
32	49	+1	+4	+3	−2	-4	----	42	−1	−7	+7	+6	+9	----
33	49	+1	+2	0	−3	0	----	42	−5	−14	+7	−8	+7	----
34	49	−6	+4	−1	−9	−3	----	42	+8	−5	−7	+4	+9	----
35	50	+1	+3	+6	−1	−2	----	43	+3	+2	+1	−5	+6	----
36	51	+1	+4	+3	−4	+2	----	47	+3	−22	+22	−11	+36	----
37	53	−1	+9	+2	−5	0	----	48	+13	+11	−10	−17	+13	----
38	54	+1	+12	−3	−5	+2	----	48	+4	+3	+12	+17	0	----
39	57	−3	+1	−1	+1	+7	----	53	−17	+13	−4	−10	+8	----
40	61	−5	−1	−2	−4	−1	----	62	−23	−4	−9	−42	−10	----
41	67	+3	−5	+1	−1	+3	----	67	0	+10	−17	+24	+10	----
42	74	−4	0	+13	0	+2	----	76	+9	−1	+38	+5	+16	----
43	81	+4	−3	+12	+7	−1	----	82	+9	−32	+24	+1	−16	----
44	89	+11	+3	0	−4	−5	----	89	+6	+9	0	+18	−14	----
45	97	+5	+4	−10	0	−1	----	93	−11	−17	−32	−18	+20	----
46	102	+14	−2	+3	+11	−8	----	94	+12	+18	−5	+10	−5	----
47	106	+12	+9	0	+13	+5	----	95	+25	−7	+22	+14	+3	----
48	111	−3	−11	+12	+12	−3	----	103	−32	−7	−31	+18	−12	----
49	115	−16	−12	+33	+25	+6	----	109	−41	−19	0	+30	−17	----
50	119	−14	−6	+80	+20	+1	----	113	−2	−44	+13	+31	−22	----
51	128	−19	−6	+107	+14	+19	----	123	−17	−10	+53	+21	−27	----
52	138	−13	−19	+137	+1	+37	----	133	−25	−36	+6	+29	−3	----
53	----	----	----	+164	----	----	----	----	----	----	+38	----	----	----

Geographic section	1st week of 1930 to 31st week of 1930	32d week of 1930 to 31st week of 1931	32d week of 1931 to 31st week of 1932	32d week of 1932 to 31st week of 1933	32d week of 1933 to 31st week of 1934	32d week of 1934 to 31st week of 1935
All cities	1.1543	1.1164	0.9382	0.8604	0.9729	0.9493
New England	1.0581	1.0202	1.0269	.8565	1.0902	1.0174
Middle Atlantic	1.1792	1.1750	.9008	.8014	.9371	.8331
South Atlantic	1.0326	1.1751	.9508	.8541	1.0141	1.0299
East North Central	1.2116	1.1200	.9407	.8422	1.0470	1.0482
East South Central	1.3097	1.2396	.8021	.7653	1.0367	.9098
West North Central	1.0443	1.0925	.9452	.9920	1.0799	1.0693
West South Central	1.2144	1.0734	.8718	.9589	.9896	1.0317
Mountain	1.1091	1.1417	.9128	.9842	.8050	.9448
Pacific	1.1258	1.0657	1.0072	.9552	.8204	.8918

The details of the method of deriving the smoothed means and this series of multiplying factors are given above in the Appendix.

TABLE 4.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1930–35*

Week of year	About 10 cities[2] in the Middle Atlantic States						
	Smoothed mean (1930–33)[3]	1930	1931	1932	1933	1934	1935
1	153	+11	+19	−7	+177	+12	+65
2	158	+20	+76	+18	+184	+6	+48
3	165	−13	+176	−4	+104	−17	+13
4	167	−48	+227	−16	+78	−18	−6
5	168	−17	+272	−31	+41	−19	−16
6	173	−3	+158	−44	+9	−25	−22
7	181	+4	+90	−26	−5	−5	+1
8	184	−1	+62	+9	−1	+6	−3
9	189	+24	+35	+53	−3	+5	−12
10	189	−19	+39	+93	−19	+14	−11
11	186	−3	+18	+129	+3	−19	−3
12	183	−34	+24	+112	−1	−28	+5
13	179	−3	+30	+118	−31	−24	−28
14	173	+5	+37	+81	−4	−11	31
15	167	+19	−16	+59	−13	+9	−13
16	160	+16	+4	+41	−6	+3	−4
17	152	2	−2	+9	−14	+6	0
18	144	+12	−16	−7	−3	−3	+29
19	136	+35	−5	+5	−17	−1	+15
20	126	−12	−20	+25	−7	−11	−8
21	117	+7	−11	+11	−1	+15	+11
22	107	−28	−14	+5	+1	−2	+23
23	97	−4	−7	−1	+8	+2	+31
24	88	+2	−11	+20	+5	−13	+17
25	80	−7	−14	+8	+1	−18	+5
26	73	9	−8	+2	+6	−17	+3
27	65	−16	−8	+6	−4	−23	+1
28	61	−11	−9	+10	+9	−10	+4
29	59	−11	−8	−6	−5	−12	−1
30	57	+6	−11	+2	+11	−9	−1
31	56	−4	−3	−3	+16	+1	−12
32	56	−5	+5	0	+4	−8	-----
33	56	+8	+9	−2	+5	0	-----
34	56	−8	+8	+4	−9	−2	-----
35	57	−4	+11	+6	+6	0	-----
36	57	+4	+12	+6	−4	+1	-----
37	59	+2	+16	+1	−5	−4	-----
38	60	−1	+15	−6	−6	+1	-----
39	62	+5	0	+1	0	+7	-----
40	66	−13	+4	+5	+6	−6	-----
41	74	−2	−7	+7	0	+3	-----
42	81	−17	−4	+10	+15	+3	-----
43	89	+10	0	+13	+23	+1	-----
44	99	+8	+11	−3	−10	+1	-----
45	108	+8	+18	−19	+6	−10	-----
46	112	+13	+15	−11	+23	−9	-----
47	116	+12	+18	−6	+25	+15	-----
48	119	−4	0	−5	+29	0	-----
49	122	−30	−11	+3	+31	+20	-----
50	123	−28	+5	+40	+30	+15	-----
51	131	−16	+4	+65	+29	+43	-----
52	143	−25	−21	+95	+16	+56	-----
53	-----	-----	-----	+146	-----	-----	-----

Week of year	About 21 cities[2] in the South Atlantic States						
	Smoothed mean (1930–33)[3]	1930	1931	1932	1933	1934	1935
1	196	+37	+17	+6	+210	−5	+139
2	207	−6	+28	+34	+180	0	+202
3	216	−31	+24	+15	+111	+9	+162
4	215	+5	+65	+6	+3	−3	+71
5	217	+5	+217	−78	+36	+5	+25
6	219	−17	+197	−27	−10	+1	+38
7	221	−3	+231	−18	+5	+1	+11
8	225	−9	+198	−33	0	−29	+28
9	230	+4	+121	−15	−6	+39	+41
10	232	−4	+65	+8	−23	−4	+8
11	230	−43	+119	+44	+21	−22	+4
12	222	0	+57	+71	−13	−22	−14
13	215	−13	+42	+104	−30	−7	−19
14	204	−25	+20	+80	−28	+1	−23
15	190	+39	+6	+84	+13	−5	−15
16	181	+18	+7	+24	−31	+10	−30
17	169	+28	−21	−14	−21	+8	+2
18	154	+43	+19	+22	−23	−7	+30
19	139	−18	−11	+23	−26	+29	−10
20	128	+42	−8	+6	[illegible]	−14	+32
21	113	−11	−18	+1	−27	−11	−13
22	104	−21	+28	+31	−25	−13	0
23	94	+5	−19	+23	−2	−20	+20
24	89	−17	−16	+23	−2	−35	+19
25	70	−16	0	+9	+7	+4	+24
26	72	−3	+24	+11	−11	0	−4
27	65	−7	−5	−8	−19	+14	−1
28	62	−7	+2	+8	−2	+30	−6
29	59	−12	−26	+7	+6	+14	−18
30	62	+19	−28	+16	−5	+15	−15
31	62	+1	−2	−2	+3	−8	−4
32	61	+3	+21	+21	−3	−22	-----
33	61	−4	+3	+1	−9	−2	-----
34	62	−18	+10	−10	−30	−21	-----
35	60	−12	+18	+10	−7	−1	-----
36	61	−3	+5	+7	+12	+3	-----
37	64	−20	+4	+14	−9	−4	-----
38	63	−23	+1	+21	+9	+25	-----
39	66	−23	−8	+30	+5	+1	-----
40	69	−31	−5	−16	−4	+2	-----
41	75	−7	+8	+22	+2	+23	-----
42	86	−8	+5	+15	−56	+1	-----
43	99	+13	−17	+19	−24	−16	-----
44	110	+10	+12	+20	+10	+22	-----
45	126	0	+1	−30	−3	+5	-----
46	137	+1	−27	+18	−1	−10	-----
47	143	−3	+28	+6	+31	+4	-----
48	153	−6	−17	−9	+16	−23	-----
49	158	−24	+2	−3	+2	0	-----
50	161	−44	−1	+58	+48	−50	-----
51	174	−60	−11	+97	+22	−22	-----
52	186	−38	−33	+229	+5	+39	-----
53	-----	-----	-----	+225	-----	-----	-----

For footnotes, see table 3.

Table 5.—*Excess [1] weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1930–35*

Week of year	About 16 cities [2] in the East North Central States							About 6 cities [2] in the East South Central States						
	Smoothed mean (1930–33) [3]	1930	1931	1932	1933	1934	1935	Smoothed mean (1930–33) [3]	1930	1931	1932	1933	1934	1935
1	105	+3	−10	−5	+123	+18	+98	188	+34	−6	+14	+189	+22	+205
2	110	+1	−1	+15	+81	+30	+99	202	−64	+59	+38	+65	−60	+245
3	116	−15	+3	−22	+32	+9	+64	217	−78	+21	+2	+73	−171	+165
4	119	−16	+11	−23	+1	−18	+18	221	−9	+85	−26	−3	+22	+40
5	123	−7	+74	−9	−2	−9	+1	231	+28	+17	−10	−51	+18	+92
6	130	−6	+82	−14	−23	−14	−1	240	−41	−59	+21	−64	+15	−37
7	137	−19	+85	−6	+9	−23	−19	243	−2	−74	+31	+60	+127	+61
8	140	−1	+91	+19	−6	−13	−18	244	+33	+102	−27	−1	+38	+53
9	144	+22	+93	+12	−16	−18	−18	252	−72	+35	−20	+40	+3	+140
10	144	−19	+47	+64	−18	−17	−23	246	−13	+61	−15	−29	+77	+119
11	140	−33	+10	+38	−4	−10	−24	245	+40	+37	+10	+32	−17	−21
12	136	−6	+8	+45	−9	−26	−31	237	−8	+27	+61	+5	+4	+120
13	130	−29	+4	+38	−26	−13	−16	232	+64	+27	+59	−31	+36	−16
14	123	+7	0	+21	−16	+2	−20	226	−75	+16	+69	−40	−18	+29
15	114	−4	+4	−6	−7	+16	−16	212	+2	−18	+106	−9	+17	−32
16	107	−2	+18	−7	−29	−3	+16	190	+53	+130	+80	−38	−21	−46
17	99	+3	−7	−8	−10	+20	+8	177	+70	−49	+9	−82	+19	−47
18	92	+4	−21	+4	−13	+15	+35	162	−50	−62	+34	−44	+15	+95
19	86	−2	+2	+15	+1	+16	+21	136	−1	+1	+16	−31	+21	−10
20	80	−25	−11	+24	+1	+25	+12	127	−26	+19	+5	+23	+17	−22
21	74	−5	−10	+21	−1	+12	+13	122	−50	−12	−17	−20	−17	−44
22	67	−23	+5	+9	−13	+24	+21	115	−4	+59	−17	−8	−17	+9
23	62	−12	−8	+5	+2	+12	+19	103	−39	−14	+26	+48	−12	−34
24	56	+5	+1	−7	−7	+14	+18	101	−7	+33	−44	+3	−37	−5
25	53	−7	+6	−4	+1	−13	+8	94	+25	−35	−62	−5	−63	+28
26	49	0	+2	0	−9	−10	+13	83	+9	+42	−5	−31	+16	+11
27	44	−10	+13	−2	−1	−4	+15	74	+72	+9	−15	+3	−50	−33
28	40	−7	+4	−3	0	−2	+10	70	+4	−31	−22	−8	+9	+10
29	38	−12	−7	−3	−8	−7	0	63	−24	−34	−31	+45	+10	−10
30	36	−3	−6	0	−2	+14	−2	57	+28	−27	−12	−4	+43	+1
31	34	+4	−6	+10	+8	−1	+10	57	−16	−8	+9	−4	+43	−11
32	34	+10	+4	0	−6	−5	-----	60	−22	+28	+10	+5	+47	-----
33	35	−11	+6	−3	−11	+1	-----	61	−17	+7	+15	−3	−9	-----
34	34	−9	+2	+2	−6	−6	-----	64	−5	+6	+39	−19	−24	-----
35	34	+16	−5	+8	−3	−3	-----	64	−20	+19	+20	−19	+17	-----
36	37	−3	−1	+2	−9	+5	-----	65	+22	−8	+13	−1	−12	-----
37	38	+3	+3	+1	−2	+7	-----	62	−26	+32	+1	+10	+26	-----
38	39	+2	+11	+1	−7	−1	-----	67	+27	+3	−17	−9	−14	-----
39	41	+4	+2	−5	−3	+13	-----	73	−1	−21	−15	−49	+36	-----
40	44	+6	−4	−4	−8	+4	-----	85	+28	+1	+24	−28	+18	-----
41	48	+4	−8	+3	−4	+3	-----	90	+28	+3	−1	+26	0	-----
42	53	−4	−3	+13	−2	−6	-----	104	+55	−8	+36	−2	−27	-----
43	59	−10	−1	+3	+5	−1	-----	115	−40	+16	−33	−26	−30	-----
44	64	+22	+9	−5	−6	−2	-----	130	−72	+3	+30	+18	−57	-----
45	70	+3	+3	0	−9	+7	-----	141	+9	+7	+14	0	+1	-----
46	74	+12	−16	+9	−2	+2	-----	156	+65	+26	−3	+25	−27	-----
47	78	+1	+1	+9	+2	+3	-----	163	+12	+77	−30	+24	−5	-----
48	84	−9	−22	+13	0	−9	-----	165	−21	−12	+10	+35	+47	-----
49	87	−11	−20	+29	+25	−11	-----	159	−5	+5	+137	−12	+58	-----
50	90	−10	−16	+75	+21	−7	-----	155	−23	+14	+154	−1	+28	-----
51	96	−28	−21	+86	+8	+12	-----	164	−41	−6	+357	+3	+41	-----
52	101	−10	−13	+119	−11	+37	-----	177	−13	+3	+417	−65	+56	-----
53	-----	-----	-----	+140	-----	-----	-----	-----	-----	-----	+359	-----	-----	-----

For footnotes, see table 3.

Dates of end (Saturday) of first calendar week of the year

Year	First week ended	Year	First week ended	Year	First week ended
1920	Jan. 10	1926	Jan. 9	1932	Jan. 2
1921	Jan. 8	1927	Jan. 8	1933	Jan. 7
1922	Jan. 7	1928	Jan. 7	1934	Jan. 6
1923	Jan. 6	1929	Jan. 5	1935	Jan. 5
1924	Jan. 5	1930	Jan. 4	1936	Jan. 4
1925	Jan. 10	1931	Jan. 3	1937	Jan. 9

Table 6.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1930–35*

Week of year	About 10 cities[2] in the West North Central States							About 7 cities[2] in the West South Central States						
	Smoothed mean (1930-33)[3]	1930	1931	1932	1933	1934	1935	Smoothed mean (1930-33)[3]	1930	1931	1932	1933	1934	1935
1	159	+56	+6	−38	+261	+86	+58	195	+171	+67	+27	+263	+36	+47
2	168	+47	+37	−19	+140	+28	+103	207	+23	+92	−22	+176	−41	−8
3	173	+53	+41	−42	+156	+45	+66	215	+41	+76	−9	+1	−5	0
4	173	−15	+11	−4	+79	+63	+46	219	+155	+93	−13	+16	−12	−24
5	168	+3	+4	−43	+81	−4	+100	220	+135	+67	−30	+6	−16	+78
6	165	+6	−24	+16	+101	−15	+2	221	+77	+50	+9	+28	−1	+37
7	165	−51	0	+114	+21	+63	+20	215	+88	+104	−22	+21	+32	+40
8	165	−9	+35	+178	+78	−4	+9	216	−1	+93	+27	+13	+48	+75
9	165	−21	+112	+117	+52	−15	−20	212	+11	+38	−53	−32	+45	+89
10	168	−45	+93	+114	+4	+14	−18	210	−49	−25	+60	+32	−30	+71
11	166	−25	+28	+73	+3	+10	+18	208	−54	+38	+4	−5	−69	−3
12	163	−37	+84	+70	+31	−14	−39	211	−15	−11	+82	−18	+17	−13
13	161	−29	+30	+110	−4	+53	−34	205	−39	+46	+104	−10	−1	−44
14	160	−43	−13	+70	−29	−63	−9	194	−22	+99	+43	−31	−44	−25
15	154	−4	+100	+66	−15	−24	−3	187	−5	+13	+82	−18	−74	−57
16	151	+14	+108	+20	−39	−9	0	175	−56	+30	−42	−76	+9	−16
17	142	−59	+93	+29	−10	−2	−37	163	−29	+25	−11	+18	+4	+1
18	133	−18	+47	+34	−30	−7	+41	143	−32	+37	+2	−32	−24	−12
19	121	+1	−5	−32	−11	+17	+3	131	+48	−13	+24	+5	+38	−23
20	113	−9	−11	+1	−18	+15	+38	119	−57	−7	−40	−22	+13	+39
21	105	−27	−15	+26	−1	−14	−4	107	−34	+10	+8	−37	+8	+32
22	100	−33	+33	+13	−16	+61	+13	95	+19	+40	−9	−6	+30	+8
23	95	+43	+40	−17	−29	+13	+33	95	−20	−6	+11	−25	+33	−9
24	88	0	−19	−10	−1	+4	−19	92	+22	−17	+14	−38	−24	+18
25	82	+23	+22	−20	−38	−43	−15	90	−32	−7	+16	+9	−2	+6
26	74	+9	−43	−9	+18	−19	−16	88	−4	+3	−3	−15	−13	−2
27	67	−8	+13	+1	+8	−34	−20	84	−3	+10	+18	+11	+4	+71
28	63	+14	+19	−25	+3	−30	+2	81	−6	+6	−11	−9	+27	+42
29	61	−26	+7	−17	−18	+33	+16	76	−31	−34	+25	+15	+19	+21
30	56	+1	−8	+20	−5	+65	+1	68	+5	−18	+21	−2	+13	+34
31	51	−6	−9	+39	+3	0	−6	66	−19	−12	−5	+16	+13	−12
32	49	−7	+10	−5	−10	−11	-----	64	−12	+9	0	−24	+18	----
33	47	−21	+3	−3	−8	−9	-----	63	+24	+4	+14	−10	−18	----
34	45	−14	+4	−1	−21	+19	-----	65	−5	+2	+2	−5	0	----
35	46	−9	+10	+12	−16	0	-----	70	−29	−2	+5	+26	−2	----
36	48	+4	+20	−1	−9	−16	-----	70	−10	+32	−4	+3	−15	----
37	52	−13	+4	+15	−16	−15	-----	73	−17	+26	+14	−3	−5	----
38	58	+11	−5	−29	−9	+25	-----	74	−21	+28	−7	−1	−12	----
39	62	−33	−15	+11	+10	+27	-----	76	−1	−14	−9	+26	+12	----
40	70	+5	+5	+24	−10	−2	-----	79	+3	−3	−25	+8	+42	----
41	80	+5	−20	−3	−20	+16	-----	88	+36	+6	−20	−31	0	----
42	88	−40	+17	+38	−24	+31	-----	94	+3	−9	−2	+6	−26	----
43	94	−35	+5	+35	+15	+53	-----	102	+33	+25	+33	−22	−38	----
44	99	−4	−19	−2	+6	−19	-----	110	+16	−10	+26	−37	−39	----
45	106	−27	−14	+52	−14	−23	-----	119	+6	−21	0	+1	+13	----
46	106	−33	−6	+23	−20	+3	-----	123	+10	−45	+13	+45	−6	----
47	110	+22	+17	+25	−22	+16	-----	137	+14	−30	−23	−8	−21	----
48	116	−35	−1	+19	−54	+13	-----	145	+24	−43	+191	−5	+12	----
49	121	+10	−20	+61	−34	+10	-----	152	+13	+9	+257	+80	+18	----
50	124	+31	+1	+136	0	+38	-----	161	+15	−29	+408	−18	+22	----
51	137	−40	−20	+292	−9	+28	-----	175	−16	+6	+253	−61	+61	----
52	150	−40	−21	+338	−8	+67	-----	181	+43	−3	+321	−2	+5	----
53	----------	-----	-----	+404	-----	-----	-----	----------	-----	-----	+266	-----	-----	----

For footnotes, see table 3.

TABLE 7.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1930–35*

Week of year	About 9 cities[2] in the Mountain States							About 4 cities[2] in the Pacific States						
	Smoothed mean (1930–33)[3]	1930	1931	1932	1933	1934	1935	Smoothed mean (1930–33)[3]	1930	1931	1932	1933	1934	1935
1	201	−26	+49	+113	+176	−42	+84	132	−18	−1	+56	+68	+3	+2
2	203	+41	+56	+211	+123	+26	+47	134	+11	+13	+55	+128	+7	−38
3	214	+38	+61	+89	+77	−35	+97	135	+32	−16	+48	+27	−14	+2
4	219	−72	−49	−27	−12	−13	+58	134	−38	−18	+2	+37	−6	−38
5	213	−4	+9	−4	−24	−8	+149	130	−29	−10	−6	+26	+6	+36
6	212	+177	+19	+73	+29	−50	+91	125	+28	−49	−14	+4	−18	+4
7	213	+133	−43	+38	−6	−16	−56	126	+11	−48	+17	−6	−10	−26
8	202	+42	+30	+92	+73	+1	+14	121	−50	−33	−17	+82	+5	−17
9	195	+41	−15	+115	−6	+6	−13	119	−45	+5	−2	+71	+2	−2
10	188	−29	−40	+60	−83	+115	−49	114	−33	+14	−1	−15	−30	−25
11	178	−60	+67	+71	−5	+8	−31	109	−40	+45	+15	−40	−6	−2
12	176	+54	−44	+115	−88	+45	+82	98	−6	+31	+6	−43	+3	−6
13	177	+27	−10	+19	−47	+39	−65	91	+15	+42	−15	−20	+4	+3
14	164	+24	−4	+40	−17	−12	+76	82	−15	−20	+7	−20	+21	+5
15	157	+32	+29	+20	−62	−31	−45	73	+22	+1	−2	−19	−3	+6
16	138	+19	−28	−31	−43	+26	+41	63	−22	+10	−2	−9	+15	+9
17	128	+21	−25	+4	+1	+26	−23	62	−9	−15	−2	−8	−7	+29
18	111	−63	−40	+87	−50	+32	+49	60	−10	−16	−23	+7	−10	−29
19	108	0	+2	+21	+46	+13	+52	58	+8	+15	+14	−8	−9	+16
20	100	−25	−27	−13	−22	+14	−25	57	+9	+1	+3	+10	+6	+24
21	104	+14	−23	+36	−9	+19	+31	56	−14	−5	−10	−2	−13	−7
22	100	−17	−27	+16	−22	+14	+9	54	+6	−10	+2	−10	−19	0
23	101	+9	−28	+37	−6	−12	+42	52	−16	0	+3	−30	−2	+2
24	94	−18	−37	−34	+136	−7	+14	52	+18	−7	−6	+8	−3	−10
25	89	+30	−15	−29	−12	−12	+27	51	+17	−15	+4	+3	−5	+5
26	81	−13	−57	−5	+47	+12	+34	51	+1	−11	+7	−9	+11	+7
27	72	−20	−1	−6	−12	+3	+9	46	+21	+2	0	−9	+12	−10
28	67	+29	−15	−9	−7	−2	−3	41	+18	−13	−4	+6	−2	+13
29	61	−8	−35	+5	+41	−32	+2	40	−21	−19	−8	−7	+4	+9
30	62	+8	−54	+21	+6	−15	+26	38	−31	+5	−1	−7	+8	+3
31	63	−10	−28	−6	−29	−17	−9	36	+8	+5	+18	−1	+21	+7
32	61	+16	−12	+9	+36	+19	----	40	+6	+3	+8	−4	+10	----
33	58	+54	+8	+12	+4	−3	----	42	+1	−26	−3	+3	+30	----
34	63	−12	−14	−10	+8	−26	----	38	+15	+22	−6	+9	+22	----
35	66	−24	+1	−39	−11	−1	----	38	+18	−7	+18	−6	−2	----
36	67	−16	+35	−43	+39	−11	----	41	−10	−20	−7	−16	+7	----
37	70	+40	+6	−9	+37	+14	----	43	−15	+5	+7	+3	−1	----
38	79	+39	+6	−17	−5	+5	----	43	+3	+43	−6	−4	−1	----
39	80	−40	−3	−19	+29	−33	----	47	+5	+39	−11	+3	−5	----
40	88	+55	−19	+17	−37	−40	----	51	−2	+2	−28	+5	−8	----
41	95	−5	−35	−7	−26	−13	----	53	−7	+7	−14	−8	−10	----
42	106	+77	+25	+25	−26	+21	----	52	+34	+18	−1	+8	+28	----
43	118	−49	−21	+48	+41	+27	----	55	+24	+7	+8	−23	+9	----
44	137	+24	−56	+3	+5	−43	----	63	−24	−15	+3	−10	−3	----
45	141	+37	+27	+8	−30	+5	----	64	−7	−6	−24	+22	+5	----
46	152	+50	+36	+40	−29	−49	----	69	+15	+13	+34	+8	−14	----
47	158	+43	+47	−53	−68	−72	----	78	−13	−24	+2	+25	+15	----
48	157	+70	+5	+35	−25	+15	----	84	+5	−4	+43	0	−17	----
49	158	−34	−13	+129	+34	+49	----	91	−20	+4	+80	+30	−9	----
50	161	−21	−25	+291	−45	+63	----	101	−25	+42	+103	−7	−9	----
51	167	+41	+65	+405	+10	−11	----	110	+51	+25	+72	−1	−4	----
52	182	−19	+130	+329	−37	+43	----	121	+58	−26	+48	−12	−13	----
53	----	----	----	+242	----	----	----	----	----	----	+77	----	----	----

For footnotes, see table 3.

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A comparison of the mortality rates by weeks during the influenza epidemic of 1889–90 and during the primary stage of the influenza epidemic of 1918 in 12 cities in the United States. Pub. Health Rep., Jan. 31, 1919. (Reprint 502.)

Preliminary statistics of the influenza epidemic. By Edgar Sydenstricker. Pub. Health Rep., Dec. 27, 1918.

DEATHS DURING WEEK ENDED NOV. 9, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 9, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,730	7,986
Deaths per 1,000 population, annual basis	10.8	11.1
Deaths under 1 year of age	475	574
Deaths under 1 year of age per 1,000 estimated live births	44	53
Deaths per 1,000 population, annual basis, first 45 weeks of year	11.3	11.3
Data from industrial insurance companies:		
Policies in force	67,689,195	67,043,800
Number of death claims	10,029	10,802
Death claims per 1,000 policies in force, annual rate	7.7	8.4
Death claims per 1,000 policies, first 45 weeks of year, annual rate	9.6	9.8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended November 16, 1935, and November 17, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 16, 1935, and Nov. 17, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934
New England States:								
Maine	1	2		2	85	18	1	0
New Hampshire						28	0	0
Vermont	1	4			49	3	0	0
Massachusetts	8	9			80	73	2	1
Rhode Island	1	3			19	1	0	0
Connecticut	3	3	3	4	52	209	1	0
Middle Atlantic States:								
New York	24	48	[1] 7	20	350	702	5	8
New Jersey	20	30	9	13	14	41	3	2
Pennsylvania	62	57			69	429	2	0
East North Central States:								
Ohio	89	132	52	59	63	159	4	1
Indiana	75	72	26	58	18	137	1	1
Illinois	73	112	24	22	14	318	8	4
Michigan	36	21	1		13	46	3	2
Wisconsin	3	8	43	9	42	136	0	2
West North Central States:								
Minnesota	7	6	1	1	45	140	1	0
Iowa	23	13	3		5	92	1	0
Missouri	76	84	73	33	31	99	1	2
North Dakota	1	5	5	2	11	43	0	0
South Dakota	5	4		1	2	12	0	1
Nebraska	17	31			47	9	0	0
Kansas	26	27	8	1	3	131	0	0
South Atlantic States:								
Delaware		1			125		0	0
Maryland [3]	21	18	2	6	8	44	3	1
District of Columbia	15	11	1	1	1	1	6	0
Virginia [3]	72	73			26	139	0	1
West Virginia	42	77	20	33	14	109	1	0
North Carolina [3]	74	73	8	1	9	94	2	2
South Carolina	15	13	147	328	1	13	0	0
Georgia [3]	41	45					0	0
Florida	21	16	1	1	4	6	0	0
East South Central States:								
Kentucky	44	96	1	33	7	218	0	0
Tennessee [3]	61	65	16	34	4	19	3	1
Alabama [3]	44	76	31	92	6	122	4	0
Mississippi [3]	10	30					0	0
West South Central States:								
Arkansas	12	3	13	13			0	0
Louisiana	32	25	6	4	10	4	1	0
Oklahoma [4]	25	20	50	35		6	0	2
Texas [3]	155	58	92	127	14	7	1	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 16, 1935, and Nov. 17, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934
Mountain States:								
Montana		1	3	4	22	36	0	0
Idaho	1		1	3	3		0	0
Wyoming	3				5	2	1	0
Colorado	13	7			3	107	2	0
New Mexico	6	5			18	41	0	2
Arizona	1	4	32	1	1	18	2	1
Utah [2]		2		2	3	23	0	0
Pacific States:								
Washington		1			92	104	2	0
Oregon	1	1	28	31	153	26	2	0
California [3]	49	56	52	37	140	50	0	2
Total	1,309	1,448	756	1,011	1,681	4,015	63	38
First 46 weeks of year	31,702	34,015	110,893	56,510	707,296	687,530	5,001	2,029

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934
New England States:								
Maine	3	1	12	20	0	0	0	4
New Hampshire	1	1	10	5	0	0	0	0
Vermont	1	0	13		0	0	4	1
Massachusetts	10	2	175	125	0	0	1	5
Rhode Island	5	0	12	10	0	0	0	1
Connecticut	3	0	27	34	0	0	2	0
Middle Atlantic States:								
New York	22	4	390	288	0	0	11	12
New Jersey	8	0	95	134	0	0	7	6
Pennsylvania	2	3	395	400	0	0	14	23
East North Central States:								
Ohio	0	8	441	721	0	3	11	10
Indiana	4	1	176	188	2	0	0	7
Illinois	3	3	451	513	3	1	6	15
Michigan	6	6	171	252	0	0	3	9
Wisconsin	2	4	311	313	16	17	5	6
West North Central States:								
Minnesota	1	4	238	80	0	10	1	1
Iowa	2	1	84	64	2	1	9	3
Missouri	2	2	125	92	4	6	3	19
North Dakota	0	0	48	39	2	0	2	0
South Dakota	1	0	35	25	6	1	0	3
Nebraska	0	4	77	31	72	0	0	1
Kansas	0	1	140	79	11	1	7	5
South Atlantic States:								
Delaware	0	0	6	5	0	0	3	2
Maryland [3]	1	2	80	102	0	0	12	15
District of Columbia	0	0	8	26	0	0	1	1
Virginia [3]	2	1	74	127	0	0	16	2
West Virginia	0	1	132	148	1	0	6	19
North Carolina [3]	7	1	56	127	0	0	3	6
South Carolina	0	0	11	12	0	0	5	4
Georgia [3]	1	0	43	25	0	0	6	2
Florida	0	0	11		0	0	4	3
East South Central States:								
Kentucky	3	2	59	93	0	0	14	21
Tennessee [3]	4	0	96	92	1	0	11	14
Alabama [3]	2	0	27	38	0	0	10	7
Mississippi [3]	0	1	18	19	0	0	6	5
West South Central States:								
Arkansas	0	0	7	2	0	0	2	4
Louisiana	2	2	8	20	0	1	11	11
Oklahoma [4]	1	0	13	18	0	1	11	30
Texas [3]	0	2	66	49	0	5	27	65

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 16, 1935, and Nov. 17, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934	Week ended Nov. 16, 1935	Week ended Nov. 17, 1934
Mountain States:								
Montana	0	3	120	17	277	0	4	0
Idaho	0	0	63	4	0	0	2	1
Wyoming	0	1	44	17	2	3	1	0
Colorado	4	0	86	173	7	9	3	0
New Mexico	0	1	23	26	0	0	9	14
Arizona	0	1	17	17	0	0	0	3
Utah [2]	0	0	83	31	0	0	0	0
Pacific States:								
Washington	1	4	52	36	33	20	3	3
Oregon	6	3	53	39	0	0	5	6
California [3]	12	21	250	164	0	1	14	14
Total	122	91	4,927	4,840	439	80	275	383
First 46 weeks of year	10,269	6,962	216,896	183,828	6,313	4,412	16,271	19,303

[1] New York City only.
[2] Week ended earlier than Saturday
[3] Typhus fever: Virginia, 1; North Carolina, 1; Georgia, 9; Tennessee, 1; Alabama, 13; Texas, 3; California, 2.
[4] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August 1935										
Idaho	------	------	3	------	6	------	1	16	1	17
September 1935										
Colorado	2	41	------	------	22	------	6	168	5	16
October 1935										
Arkansas	2	59	36	195	2	33	1	36	0	22
Florida	1	81	5	173	19	3	1	23	0	6
Maine	1	11	5	------	121	------	32	57	0	11
Michigan	8	62	15	9	101	------	82	543	0	41
Minnesota	10	75	2	------	52	------	12	777	4	13
New Jersey	3	79	18	32	63	------	96	289	0	13
Ohio	20	407	122	8	217	------	10	1,331	6	107
Pennsylvania	21	234	------	4	282	------	43	1,209	0	116
Rhode Island	2	4	------	------	126	------	56	49	0	1
South Carolina	------	332	691	1,460	10	74	3	45	0	29

August 1935

	Cases
Idaho:	
Chicken pox	5
Epidemic encephalitis	1
Mumps	4
Rocky Mountain spotted fever	2
Septic sore throat	10
Whooping cough	4

September 1935

	Cases
Colorado:	
Chicken pox	31
Impetigo contagiosa	6
Mumps	70
Vincent's infection	5
Whooping cough	42

October 1935

	Cases
Anthrax:	
New Jersey	2
Pennsylvania	1
Chicken pox:	
Arkansas	20
Florida	9
Maine	129
Michigan	856
Minnesota	536
New Jersey	637
Ohio	980
Pennsylvania	1,757
Rhode Island	35
South Carolina	13
Dengue:	
Florida	3
South Carolina	5
Diarrhea:	
South Carolina	224
Ohio (under 2 years, including enteritis)	16
Dysentery:	
Michigan (amoebic)	3
Minnesota (bacillary)	1
New Jersey (bacillary)	1
Ohio (amoebic)	1
Ohio (bacillary)	1
Pennsylvania (amoebic)	1
Pennsylvania (bacillary)	3
Rhode Island (bacillary)	4

October 1935—Continued

	Cases
Epidemic encephalitis:	
Michigan	2
New Jersey	5
Pennsylvania	6
South Carolina	1
Food poisoning:	
Ohio	6
German measles:	
Maine	15
Michigan	19
New Jersey	47
Ohio	21
Pennsylvania	81
Rhode Island	1
Hookworm disease:	
South Carolina	66
Lead poisoning:	
Michigan	2
Ohio	14
Mumps:	
Arkansas	19
Florida	39
Maine	137
Michigan	131
New Jersey	186
Ohio	378
Pennsylvania	787
Rhode Island	80
South Carolina	55
Ophthalmia neonatorum:	
Ohio	68
Pennsylvania	8
South Carolina	13
Paratyphoid fever:	
Ohio	3
South Carolina	3
Puerperal septicemia:	
Ohio	5
Rabies in animals:	
Michigan	4
New Jersey	6
South Carolina	49
Septic sore throat:	
Michigan	48
Minnesota	2
Ohio	94
Rhode Island	5
Tetanus:	
Michigan	2
New Jersey	1

October 1935—Continued

	Cases
Tetanus—Continued.	
Pennsylvania	2
South Carolina	5
Trachoma:	
Arkansas	8
New Jersey	4
Ohio	2
Pennsylvania	1
Trichinosis:	
Maine	1
Minnesota	2
New Jersey	2
Ohio	8
Rhode Island (delayed report)	1
Tularaemia:	
Minnesota	5
South Carolina	1
Typhus fever:	
Florida	4
South Carolina	3
Undulant fever:	
Arkansas	3
Florida	2
Maine	3
Michigan	5
Minnesota	7
New Jersey	2
Ohio	6
Pennsylvania	10
Vincent's infection:	
Maine	2
Michigan	41
Whooping cough:	
Arkansas	15
Florida	21
Maine	61
Michigan	886
Minnesota	106
New Jersey	575
Ohio	420
Pennsylvania	1,108
Rhode Island	79
South Carolina	38

SMALLPOX IN VALLEY COUNTY, MONT.

A report dated November 20, 1935, stated that since September 15, 1935, there had been 261 cases of smallpox in Valley County, Mont. Most of the cases were in or near Glasgow. The disease was mild.

CASES OF VENEREAL DISEASES REPORTED FOR SEPTEMBER 1935

These reports are published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State and city health officers. They are preliminary and are therefore subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

Reports from States

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	802	2.96	316	1.17
Arizona	54	1.18	159	3.48
Arkansas [1]	286	1.52	11[illegible]	.59
California	1,306	2.12	1,392	2.26
Colorado [2]				
Connecticut	171	1.03	143	.86
Delaware	101	4.17	45	1.86
District of Columbia	145	2.92	156	3.14
Florida	208	1.32	75	.48
Georgia	1,155	3.97	431	1.48
Idaho	0	0	0	0
Illinois	1,293	1.64	1,183	1.50
Indiana	190	.58	226	.68
Iowa [1]	135	.54	227	.91
Kansas	93	.49	87	.46
Kentucky	190	.72	300	1.13
Louisiana	72	.33	93	.43
Maine	24	.30	46	.57
Maryland	731	4.37	261	1.56
Massachusetts	462	1.07	553	1.28
Michigan	484	.95	643	1.26
Minnesota	373	1.43	388	1.49
Mississippi	1,326	6.45	2,091	10.17
Missouri	565	1.54	195	.53
Montana [1]	36	.67	88	1.64
Nebraska	52	.37	96	.69
Nevada [2]				
New Hampshire	18	.38	26	.55
New Jersey	431	1.02	383	.91
New Mexico [1]	96	2.20	145	3.32
New York [1]	5,062	3.88	1,244	.95
North Carolina	1,065	3.23	353	1.07
North Dakota	71	1.03	12	.17
Ohio [1]	593	.87	271	.40
Oklahoma [1]	156	.63	183	.74
Oregon	30	.30	139	1.40
Pennsylvania	284	.29	202	.21
Rhode Island	86	1.22	63	.89
South Carolina [3]				
South Dakota	5	.07	35	.50
Tennessee	951	3.55	526	1.97
Texas	352	.58	74	.12
Utah [3]				
Vermont	17	.47	33	.91
Virginia [1]	310	1.27	227	.93
Washington	94	.58	167	1.04
West Virginia	263	1.47	148	.83
Wisconsin [4]	30	.10	211	.70
Wyoming [3]				
Total	20,168	1.64	13,746	1.12

[1] Incomplete.
[2] Not reporting.
[3] No report for current month.
[4] Only cases of syphilis in the infectious stage are reported.

Reports from cities of 200,000 population or over

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Akron, Ohio	23	0.85	44	1.62
Atlanta, Ga	226	7.87	134	4.67
Baltimore, Md	414	5.02	173	2.10
Birmingham, Ala	148	5.24	70	2.48
Boston, Mass	181	2.29	209	2.64
Buffalo, N. Y.[1]				
Chicago, Ill	866	2.43	817	2.29
Cincinnati, Ohio	63	1.35	63	1.35
Cleveland, Ohio	230	2.47	101	1.09
Columbus, Ohio	63	2.06	23	.75
Dallas, Tex	84	2.90	16	.55
Dayton, Ohio	3	.14	0	0
Denver, Colo	26	.88	8	.27
Detroit, Mich	116	.67	193	1.11
Houston, Tex.[2]	183	5.46	47	1.40
Indianapolis, Ind	29	.77	39	1.03
Jersey City, N. J	0	0	2	.05
Kansas City, Mo	69	1.64	17	.40
Los Angeles, Calif	419	2.93	362	2.53
Louisville, Ky	207	6.39	330	10.19
Memphis, Tenn	173	6.48	61	2.28
Milwaukee, Wis	4	.07	19	.31
Minneapolis, Minn	100	2.06	123	2.53
Newark, N. J	230	4.96	156	3.37
New Orleans, La.[3]				
New York, N. Y	1,012	1.39	263	.36
Oakland, Calif	35	1.15	30	.99
Omaha, Nebr	26	1.18	17	.77
Philadelphia, Pa	144	.72	51	.26
Pittsburgh, Pa.[1]				
Portland, Oreg	11	.35	83	2.64
Providence, R. I	32	1.24	24	.93
Rochester, N. Y	83	2.46	45	1.33
St. Louis, Mo	760	9.00	230	2.75
St. Paul, Minn	38	1.35	39	1.38
San Antonio, Tex.[3]				
San Francisco, Calif	128	1.91	155	2.31
Seattle, Wash	69	1.82	91	2.40
Syracuse, N. Y.[4]	25	1.15	36	1.65
Toledo, Ohio	57	1.87	38	1.25
Washington, D. C.[5]	145	2.92	156	3.14

[1] No report for current month.
[2] Data for Jefferson Davis and Hermann Hospitals; physicians of Houston are not compelled to report venereal diseases.
[3] Not reporting.
[4] Reported by dispensary and clinics.
[5] Reported by Social Hygiene Clinic.

WEEKLY REPORTS FROM CITIES

City reports for week ended Nov. 9, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	2	0	0	0	0	6	17
New Hampshire:											
Concord	0		0	0	2	1	0	0	0	0	6
Manchester	0		0	0	2	0	0	1	0	0	9
Nashua	0			0		0	0		0	0	
Vermont:											
Barre	1		0	0	0	0	0	0	0	0	3
Burlington	0		0	0	0	0	0	0	0	0	10
Rutland	0		0	0	0	1	0	0	0	0	4
Massachusetts:											
Boston	3		1	6	16	39	0	8	0	5	214
Fall River	1		0	0	3	1	0	0	0	0	28
Springfield	0		0	0	4	4	0	0	0	6	30
Worcester	0		0	1	6	18	0	2	0	3	41
Rhode Island:											
Pawtucket											
Providence	0		0	1	5	2	0	3	0	5	48
Connecticut:											
Bridgeport	0		0	0	3	1	0	1	0	3	29
Hartford	0		0	0	3	0	0	0	1	12	41
New Haven	0	1	0	0	0	0	0	1	0	8	37
New York:											
Buffalo	2		1	7	14	32	0	5	0	6	114
New York	28	5	4	43	101	64	0	80	10	78	1,305
Rochester	0		0	1	1	0	0	1	0	12	67
Syracuse	0		0	6	3	0	0	1	0	8	46
New Jersey:											
Camden	1		0	0	2	4	0	0	1	5	33
Newark	0	2	1	2	5	16	0	7	0	32	82
Trenton	1		0	0	2	0	0	2	0	2	30
Pennsylvania:											
Philadelphia	6	2	2	28	21	61	0	14	4	62	414
Pittsburgh	2		3	1	27	47	0	6	0	24	170
Reading	0		0	0	0	5	0	2	0	1	23
Scranton	0			1		2	0		0	0	
Ohio:											
Cincinnati	11		2	2	7	15	0	4	0	5	133
Cleveland	4	18	0	0	13	25	0	8	0	45	180
Columbus	8	2	2	0	2	16	0	5	0	3	95
Toledo	0		0	2	2	13	0	3	0	11	55
Indiana:											
Anderson	2		0	0	2	4	0	0	0	6	10
Fort Wayne	14		0	0	2	9	0	0	0	0	21
Indianapolis	9		0	1	8	12	0	7	0	19	108
Muncie	0		0	3	1	3	0	1	0	0	12
South Bend	0		0	0	1	2	0	0	0	0	13
Terre Haute	0		0	0	0	2	0	0	0	0	18
Illinois:											
Alton	7		0	0	0	6	0	0	1	0	5
Chicago	18	2	2	10	46	175	0	35	3	74	672
Elgin	0		0	0	1	4	0	0	0	0	11
Moline	0		0	0	1	0	0	0	0	1	9
Springfield	0		0	0	1	3	0	0	0	1	19
Michigan:											
Detroit	10	1	0	5	13	41	0	16	0	124	212
Flint	2		0	0	4	12	0	2	0	0	24
Grand Rapids	0		0	3	2	10	0	1	0	2	27
Wisconsin:											
Kenosha	1		0	1	0	5	0	0	0	14	3
Milwaukee	0		0	1	6	37	0	3	0	118	91
Racine	0		0	1	1	18	0	1	0	3	11
Superior	0		0	0	1	3	0	0	0	0	11
Minnesota:											
Duluth	0		0	0	4	3	0	1	0	5	27
Minneapolis	7		2	4	4	67	0	2	1	8	94
St. Paul	0		0	0	3	31	0	2	0	5	56

City reports for week ended Nov. 9, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Iowa:											
Cedar Rapids	0	------	0	0	0	4	0	0	0	1	------
Davenport	1	------	------	0	------	5	0	------	0	0	------
Des Moines	2	------	------	0	------	6	0	------	0	2	29
Sioux City	0	------	------	0	------	2	0	------	0	0	------
Waterloo	7	------	------	1	------	9	0	------	0	1	------
Missouri:											
Kansas City	3	------	0	0	8	6	0	2	0	1	82
St. Joseph	4	------	0	0	1	2	0	1	0	0	5
St. Louis	16	1	0	3	7	22	0	3	0	5	184
North Dakota:											
Fargo	1	------	1	0	0	8	1	0	0	0	9
Grand Forks	0	------	------	0	------	4	0	------	0	2	------
Minot	0	------	0	0	0	0	0	0	0	0	7
South Dakota:											
Aberdeen	0	------	------	0	------	1	0	------	0	3	------
Nebraska:											
Omaha	5	------	0	2	4	21	2	1	0	0	58
Kansas:											
Lawrence	0	------	0	0	0	1	0	0	0	0	3
Topeka	------	------	------	------	------	------	------	------	------	------	------
Wichita	1	------	0	1	5	1	0	1	0	1	38
Delaware:											
Wilmington	0	------	0	0	0	1	0	0	0	3	22
Maryland:											
Baltimore	4	2	0	2	9	24	0	11	1	12	194
Cumberland	3	------	0	0	0	2	0	1	0	0	9
Frederick	0	------	0	0	0	0	0	0	0	0	4
District of Col.:											
Washington	18	1	1	2	12	10	0	8	1	1	152
Virginia:											
Lynchburg	1	------	0	0	0	0	0	0	0	0	10
Norfolk	1	------	0	3	3	3	0	2	0	0	27
Richmond	5	------	1	0	5	4	0	5	0	0	51
Roanoke	2	------	0	0	0	4	0	0	0	0	9
West Virginia:											
Charleston	4	1	1	0	2	1	0	0	0	4	20
Huntington	1	------	------	0	------	10	0	------	0	0	------
Wheeling	1	------	0	0	5	5	0	0	0	0	11
North Carolina:											
Gastonia	1	------	0	0	1	0	0	0	0	0	5
Raleigh	0	------	0	1	1	0	0	0	0	0	11
Wilmington	0	------	0	0	1	0	0	0	0	1	11
Winston-Salem	0	------	0	0	2	4	0	0	0	0	14
South Carolina:											
Charleston	0	------	1	0	2	0	0	0	2	0	24
Columbia	------	------	------	------	------	------	------	------	------	------	------
Florence	1	------	0	0	0	0	0	0	0	0	5
Greenville	0	------	0	0	3	1	0	0	0	0	9
Georgia:											
Atlanta	9	10	0	0	8	14	0	1	0	0	------
Brunswick	0	------	0	0	0	1	0	0	0	0	4
Savannah	3	------	0	0	3	2	0	2	1	0	33
Florida:											
Miami	3	------	2	0	2	2	0	2	0	0	24
Tampa	1	------	0	0	3	3	0	1	0	0	27
Kentucky:											
Ashland	6	------	------	0	------	2	0	------	1	0	------
Covington	0	------	0	0	0	2	0	1	0	1	7
Lexington	2	------	0	0	2	1	0	1	2	2	18
Tennessee:											
Knoxville	5	------	1	0	2	0	0	2	0	0	37
Memphis	3	------	2	0	5	9	0	6	3	7	86
Nashville	4	------	0	1	3	6	0	0	1	0	39
Alabama:											
Birmingham	7	------	1	0	4	2	0	3	0	0	55
Mobile	5	------	0	0	3	2	0	2	1	1	20
Montgomery	2	------	------	0	------	1	0	------	0	1	------
Arkansas:											
Fort Smith	1	------	------	0	------	0	0	------	0	0	------
Little Rock	2	------	0	0	4	4	0	2	0	0	6
Louisiana:											
New Orleans	15	3	2	9	12	5	0	15	2	14	128
Shreveport	0	------	0	0	5	1	0	4	0	0	40

City reports for week ended Nov. 9, 1935—Continued.

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Oklahoma:											
Oklahoma City	2	17	0	0	5	3	0	0	0	0	38
Texas:											
Dallas	13	1	1	0	10	8	0	3	0	1	78
Fort Worth	15	------	0	1	5	7	0	0	0	0	38
Galveston	1	------	0	0	0	0	0	1	0	0	14
Houston	12	------	0	1	3	8	0	4	0	0	69
San Antonio	2	------	0	0	4	4	0	9	0	0	55
Montana:											
Billings	0	------	0	0	0	16	0	0	0	1	12
Great Falls	0	------	0	0	0	0	0	0	0	1	2
Helena	0	------	0	0	0	0	0	0	0	0	5
Missoula	0	------	0	11	1	33	0	0	0	0	11
Idaho:											
Boise	0	------	0	0	1	1	0	0	0	0	8
Colorado:											
Colorado Springs	0	------	0	1	2	13	0	0	0	3	12
Denver	5	------	0	2	6	11	1	1	0	3	89
Pueblo	1	------	0	0	0	20	0	1	0	3	7
New Mexico:											
Albuquerque	0	------	0	0	1	4	0	4	0	0	11
Utah:											
Salt Lake City	0	------	0	3	4	42	0	2	0	9	32
Nevada:											
Reno	------	------	------	------	------	------	------	------	------	------	------
Washington:											
Seattle	0	------	1	2	6	19	0	3	0	0	67
Spokane	0	------	0	4	2	3	1	1	0	7	46
Tacoma	0	------	0	0	3	2	0	0	0	0	26
Oregon:											
Portland	0	1	------	12	8	14	0	5	0	0	97
Salem	0	------	------	0	------	3	0	------	0	1	------
California:											
Los Angeles	10	16	2	12	17	45	0	14	3	9	318
Sacramento	9	------	0	0	4	16	0	2	0	1	33
San Francisco	0	9	1	16	9	14	0	6	0	19	173

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases	State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases
Massachusetts:				Kansas:			
Boston	0	0	8	Wichita	0	0	1
Fall River	0	0	2	Maryland:			
Worcester	0	0	1	Baltimore	2	2	1
Rhode Island:				District of Columbia:			
Providence	0	0	1	Washington	2	0	1
New York:				Virginia:			
Buffalo	1	0	0	Richmond	1	0	0
New York	8	4	9	Georgia:			
Syracuse	0	0	4	Atlanta	3	0	1
New Jersey:				Tennessee:			
Newark	0	0	6	Memphis	0	1	0
Pennsylvania:				Louisiana:			
Philadelphia	3	0	5	New Orleans	2	0	1
Ohio:				Texas:			
Cincinnati	2	0	0	Galveston	0	2	0
Columbus	0	1	0	Montana:			
Illinois:				Missoula	1	0	0
Chicago	7	3	0	Colorado:			
Michigan:				Colorado Springs	0	0	1
Detroit	1	1	1	Washington:			
Iowa:				Tacoma	0	0	1
Waterloo	0	1	0	California:			
Missouri:				Los Angeles	1	0	1
Kansas City	1	0	0	San Francisco	0	0	3
St. Louis	1	0	1				

Epidemic encephalitis.—Cases: Springfield, Mass., 1; Pittsburgh, 1; Chicago, 1; Detroit, 1.
Pellagra.—Cases: Winston-Salem, 1; Atlanta, 1; Savannah, 2; San Francisco, 1.
Typhus fever.—Cases: Charleston, S. C., 2; Atlanta, 5; Savannah, 2.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended November 2, 1935.—During the 2 weeks ended November 2, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			1	1	1	1				4
Chicken pox	1		42	250	801	170	63	44	119	1,490
Diphtheria		3	6	89	14	14	11	2	3	142
Dysentery					2					2
Erysipelas		1		9	7	3		1	3	24
Influenza		11	2		104	2			27	146
Lethargic encephalitis						1				1
Measles	13		292	300	507	13	61	14	105	1,305
Mumps		30			228	121	971	3	99	1,452
Paratyphoid fever	1	2			3					6
Pneumonia					27				16	43
Poliomyelitis				2	8	4	2	5		16
Scarlet fever	5	22	7	306	341	[illegible]	36	38	54	913
Smallpox									1	1
Trachoma					1				1	2
Tuberculosis	3	2	19	92	100	30		5	25	276
Typhoid fever		2	12	81	16	11	5	2	1	130
Undulant fever				1	3				1	5
Whooping cough		29	32	96	267	53	63	10	28	578

JAMAICA

Communicable diseases—4 weeks ended November 2, 1935.—During the 4 weeks ended November 2, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	1	3	Puerperal fever		1
Dysentery	14	1	Tuberculosis	29	71
Erysipelas		2	Typhoid fever	19	106
Leprosy		1			

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NEWFOUNDLAND

Vital statistics—1934.—Following are vital statistics as published in the annual report of the Registrar General of Births, Marriages, and Deaths, for Newfoundland, for 1934:

	Number	Rate per 1,000 population		Number	Rate per 1,000 population
Population	293,923		Deaths from—Continued.		
Total births	6,905	23.49	Congenital debility	296	1.00
Live births	6,746		Gastro-enteritis (under 2 years)	60	.20
Stillbirths	159		Heart disease	198	.67
Deaths	3,652	12.42	Infantile convulsions	154	.52
Deaths under 1 year [1]	706	2.40	Influenza	47	.16
Deaths from:			Meningitis	59	.20
Apoplexy, paralysis, and epilepsy	185	.63	Nephritis	32	.11
Bronchitis	48	.16	Pneumonia	235	.79
Cancer	246	.84	Tuberculosis	552	1.88

[1] Deaths under 1 year per 1,000 births, 102.82.

PERU

Lima—Influenza.—According to information dated September 27, 1935, the third epidemic of influenza this year had occurred in the Lima district. Many cases of illness with high fever and attacks in the throat and bronchial tubes were prevalent. However, schools had been reopened after having been closed for 1 week.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935 3	10	17	24	31	September 1935 7	14	21	28	October 1935 5	12	19	26
China:																		
Amoy	C				1													
Canton	C		1															
Swatow	C		2															
India	C	23,104	19,176	24,379	25,494	9,984	10,691	10,899	12,591	13,548	14,187	13,950						
	D	12,660	10,447	13,840	13,286	5,290	5,768	5,625	6,548	6,714	6,802	6,388						
Assam	C	2,038	2,405	1,212	250	32	261	562	440	411	228	126	120	111		74	35	55
	D	1,204	1,465	666	146	12	121	241	263	234	116	66	62	42		57	16	26
Bassein	C	21	22	4														
	D	14	20	1														
Bombay Presidency	C	146	232	216	1,328	1,039	1,145	1,390	1,171	1,491	1,632	2,403	2,087	1,657	1,284	708		
	D	66	107	84	528	434	524	589	479	661	676	1,003	917	732	620	323		
Bombay	C	1			7	2			1	3			2	1				
Calcutta	C	782	825	704	522	56	51	36	39	34	30	36	36	17	13	30	28	19
Central Provinces and Berar	C	948	1,112	4,622	3,732	886	930	1,294	1,572	2,561	3,424	2,565	2,722	3,063	2,472	1,723	1,580	
Chittagong	C	19	34	29	8		4	[1] 1	1	1								
Cochin	D									1		2	1	8	5	4		
Madras Presidency	C	2,432	1,468	2,583	2,972	1,652	1,536	1,248	1,500	1,551	1,806	2,199	2,350					
	D	1,215	782	1,162	1,264	707	606	592	662	682	775	912	1,037					
Madras	C	2		15	84	63	23	12	18	21	9	8	6	8	2	2	2	2
	D			5	23	23	13	5	7	9	5	2	6	2				
Moulmein	C	6	1	18		1												
Negapatam	C	10																
Northwest Frontier Province	C									80	173	113	52		10		2	
	D									36	87	48	39		7	2	2	
Punjab	C		5	142	252	10	86	142	155	123	176	73	33	20	17	25	63	49
Rangoon	C	16	11	6	3													
Tuticorin	C	37	6															
Vizagapatam	C					1												

[1] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935: 3	10	17	24	31	September 1935: 7	14	21	28	October 1935: 5	12	19	26
India (French):																		
Chandernagor	C	62	15	7	7	12	4				1							
Karikal	C	1													1			
Pondichery	C	12	31	6	2	5	1	6	3	24	27	28	6	22	16			
Indo-China (see also table below):																		
Pnom-Penh	C			1				1									1	
Varela	C			1														
Philippine Islands:																		
Occidental Negros Province	C									1								
	D									1								
Rizal Province	C			3		1												
	D			1														
Siam:																		
Ang Thoang Province	C														2	2	1	5
	D														2	2	1	4
Ayudhaya Province	C										3	17	9	17	7	2	8	13
	D										2	13	5	11	6	1	7	11
Bangkok	C									1	3	11	11	18	12	12	8	12
Bejrpuri Province	C								6	7	3	2	1	8	3	1		10
Kanchanapuri Province [1]	C				6	6	3											
Nagara Pathom Province	C																	11
Nondpuri Province	C													2		2	6	
Pradumdhani Province	C														1		4	1
Rajpuri Province	C					6	5	28	28	5	7	6	74	20	15	2	1	
Sarapuri Province	C															3	1	2
Singhapuri Province	C															1	7	3
Smudprakar Province	C										1	2		2		4	1	
Smudsagara Province	C						1	3	2	1	3	4	1	1	3	4	1	1
Smudsongram Province	C					1	2	13	17	[illegible]	5	18	6	27	5	2	12	4
On vessels:																		
S. S. *Ethiopia* at Madras from Rangoon	C	1																
	D	1																
S. S. *Ellenga* at Rangoon	C	1																
S. S. *Bodnant* at Calcutta	C		1															
S. S. *Baron Napier* at Calcutta	C		2															

[illegible] at Calcutta	C																
S. S. *Rafula* at Penang	C			³1													
S. S. *Rajput* at Calcutta	C			1													
S. S. *Santhia* at Rangoon from Calcutta	C				1												
S. S. *Kuala* at Penang from Moulmein	C				1												
S. S. *Cape St. Francis* at Rangoon from Calcutta	C				1												
S. S. *Cape St. Andrew* at Calcutta	C				1												

Place		May 1935			June 1935			July 1935			August 1935			September 1935	
		1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20
Indo-China (French) (see also table above):															
Cambodia [4]	C	17	8	1	8	9	6								
	D	12	5		3	6	1								
Cochin-China [4]	C	3		5	7	5	11	2		2			3		1
	D	2		4	7	3	3	2		2			2		1

[2] During the period Apr. 20 to July 9, 1935, 98 cases of cholera with 95 deaths were reported in Kanchanapuri Province, Siam.
[3] Suspected.
[4] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Mar 31–Apr 27, 1935	Apr 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935: 3	10	17	24	31	September 1935: 7	14	21	28	October 1935: 5	12	19	26
Algeria: Philippeville	C																	3
Argentina (see also table below):																		
Pampa Territory—																		
Leventue.[3]																		
Victorica	C		1															
	D		1															
San Luis.[3]																		
Azores. (See table below.)																		
Bechuanaland Protectorate	C		2															
Plague-infected rats			P															
Belgian Congo	C				3		2					2			1			
Plague-infected rats																	3	
Bolivia. (See table below.)																		
Brazil.[4]																		
British East Africa:																		
Kenya	C		11	4	21	5	6	6	1	8	6	14	11	2	3			
Uganda	C	95	135	340	240	51	38	60	40	42	36	41	68	43	48	40		
	D	90	134	324	215	51	36	58	40	41	33	40	51	43	42	37		
Ceylon:																		
Colombia	C	2	4	3	5	1		2		1		6	3	2	5		1	
	D	1	4	3	5	1		2		1		4	2	2	5		1	
Plague-infected rats		14			3												3	11
Ratnapura	C														1			
Tellijjawilla	C														1			
China (see also table below):																		
Amoy	C		[8] 1															
Fukiang Province—Chuanchow.[6]																		
Manchuria.[7]																		
Dutch East Indies: West Java	C	678	656	548	591	164	174											
	D	678	651	546	588	164	174											
Ecuador (see also table below):																		
Guayaquil	C	1					1		1	1	4	1	1	2	6	14	6	9
	D	1									2			1	2	3	6	4
Plague-infected rats											2	1	2	2	4	1	1	2
Loja Province—Celica	C				1													

Egypt:																		
Alexandria	C		1															
Plague-infected rats		P	P	P	P	P		P		P		P	P	P		P		
Asyut	C	4	12	3	2				1									
Girga	C		1	1														
Minya	C			3														
Qena	C			1												1		
Hawaii Territory: Plague-infected rats—																		
Hawaii Island—Hamakua district			1	1														
Kalopa					3		1											
Kukaiau [8]																1		
Paauhau												1					1	1
Paauilo					1													
Pohakea		1																
Maui Island—Makawao district—Kahului (9-10 miles from)		1				2						1						
India	C	6,172	2,570	261	176	90	162	215	228	252	312	330						
	D	3,907	2,037	183	111	61	101	118	103	100	110	133						
Bassein	C	8	4	4	4				1			1	2					1
Plague-infected rats				1	3	1			1									
Bombay Presidency	C	306	93	14	68	22	28	45	37	30	38	43	27	55	116	112		
	D	154	46	8	36	11	11	24	15	18	27	23	16	28	60	82		
Central Provinces and Berar	C	597	71		6	1	18	42	74	120	141	121	127	94	131	25	308	
Madras Presidency	C	8	1	5	9	4	4	13	16	12	18	35	21					
	D	10		2	2	1		3	7	10	9	13	12					
Moulmein	C	2	1															
	D		1															
Punjab	C	434	548	40														
	D	223	327	31														
Rangoon	C	1	1	2	8	2	2	2						1				1
Plague-infected rats			2		2	1								1				1
Indo-China (see also table below):																		
Longxuyen	C			1														
Pnom-Penh	C		1															
Saigon and Cholon	C		1	2			1			1								
Tanghai Island	C	12																
Tayninh	C			1														

[1] Including plague in the United States and its possessions.
[2] A report dated Aug. 8, 1935, states that 4 cases of plague occurred at Leventue, Pampa Territory, Argentina, during 2 months.
[3] A report dated Aug. 2, 1935, states that plague-infected rats are present at San Luis, Argentina.
[4] Reports of plague in Brazil have been received under the dates indicated, as follows: July 25, 1935, 4 cases at Vicosa, Alagoas State; July 2, about 16 deaths in Fiera Santanna, Bahia State since Jan. 1; Oct. 15, 7 cases near Bomfim, Bahia State, during September; during October 1935, 3 cases at Tanguinho, Santa Barbara, Bahia State; July 26, 10 cases in Ceara State since Jan. 1; Sept. 10, 204 cases with 72 deaths in Pernambuco State up to Aug. 24; Oct. 8, 4 cases and 1 death at Paulista, Piauhy State.
[5] Imported.
[6] A report dated July 4, 1935, states that 76 cases of plague with 58 deaths were reported at Chuanchow, Province of Fukiang, China.
[7] A report dated Sept. 21, 1935, states that up to Sept. 17, 144 deaths from plague were reported in the provinces of Kirin, Lungkiang, Fengtien, and South Hsingan, Manchuria, China.
[8] During the week ended Nov. 2, 1935, 2 plague-infected rats were reported at Kukaiau, Hamakua District, Hawaii Island, Hawaii Territory.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D. deaths; P. present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935: 3	10	17	24	31	September 1935: 7	14	21	28	October 1935: 5	12	19	26
Iraq																		
Baghdad	C		3	1	2		1	1		1		1						
Baghdad Province	C		1															
Libya: Province of Tripoli—Tagiura	C				1													
Madagascar. (See table below.)																		
Morocco:																		
Draa boundaries—Tighmert	C				7													
Mogador	C				9													
	D				3													
Saffi Region	C	14	1															
	D	11	1															
Peru. (See table below.)																		
Senegal. (See table below.)																		
South-West Africa (See table below.)																		
Tunisia: Tunis	C			1	2		1		1		3	4	3		2			
	D			1	1						1	1						
Plague-infected rats			2	2						1								
Union of South Africa	C				7	[9] 3		[9] 1				[9] 2		[9] 6				
Cape Province	C	4	17															
Orange Free State	C	39	6															
Transvaal	C	2	1															
United States:																		
California—Plague-infected ground squirrels:																		
Lassen County				2	1													
Modoc County		3	26	65														
San Luis Obispo County		1	[10] 1															
Montana—Dillon—Plague-infected ground squirrels					1													
Oregon—Plague-infected ground squirrels:																		
Grant County					7													
Lake County			2	1														
Wallowa County					[11] 6													
On vessel: S. S. *Ipanema* at Marseille	C																[12] 2	

Place		April 1935	May 1935	June 1935	July 1935	August 1935	September 1935
Argentina (see also table above):							
Jujuy Province	C				1		
Pampa Territory—Victorica	C			2			
Santiago de Estero Province—Frias	C			2			
Azores	C			1		3	
Bolivia	C					[13] 4	
China: Kwangchowan	C	20	7				
	D	13	9				
Ecuador: Loja Province	C	6	4				
Indo-China (see also table above):							
Cambodia	C						1
Cochin-China	C	2	1	9		1	
Naotchao Island	C	18					
Madagascar (central region)	C	209	128	95	112	138	
	D	199	124	92	102	133	
Peru	C	13	10	4	4	10	3
Lambayeque Department	C	1	1				
Libertad Department	C		3		2		1

Place		April 1935	May 1935	June 1935	July 1935	August 1935	September 1935
Peru—Continued.							
Lima Department	C	12	6	4	2	5	2
Callao	C			1		3	
	D			1		2	
Plague-infected rats		P					
Lima	C	9	6	1	1	5	
	D	7	4	1		2	
Plague-infected rats		P					
Senegal:							
Baol [14]	C					16	8
Dakar [14]	C	5	10	19	25	2	
	D	4	8	13	15	1	
Louga [14]	C		1				
Rufisque [14]	C	17	10	8	2	4	
Theis [14]	C	3	19	20	17	22	
Tivaouane [14]	C	5	30	48	42	46	11
South-West Africa: Ovamboland	C		[15] 34		[15] 24		

[9] For 2 weeks.
[10] Plague-infected wood rat.
[11] Includes 1 suspected plague-infected squirrel.
[12] One of these cases was a member of the crew and the other was a stevedore believed to have worked on the vessel. Several plague-infected rats were reported found on board the vessel.
[13] Suspected.
[14] Incomplete reports.
[15] For 2 months.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935 3	August 1935 10	August 1935 17	August 1935 24	August 1935 31	September 1935 7	September 1935 14	September 1935 21	September 1935 28	October 1935 5	October 1935 12	October 1935 19	October 1935 26
Algeria:																		
Algiers Department	C			1	1							3	2					
Constantine Department	C		1	2														
Argentina.[1]																		
Belgian Congo. (See table below.)																		
Bolivia. (See table below.)																		
Brazil:																		
Porto Alegre (alastrim)	C	1	18	46	17													
Rio de Janeiro	C			1														
Santos	C											1		1				
British East Africa:																		
Kenya	C		2	2	2			2	5									
Tanganyika	C	3	3	98	96	16	11	5	17	10	17	4	9	6		1		
Uganda	C		1															
British Guiana	C		P	40														
British Somaliland	C	37	47	25	16		3				20	5			1		1	
British South Africa: Northern Rhodesia	C		4	2														
Canada:																		
Alberta	C								[2] 1									
British Columbia	C								[2] 1		[2] 3		[2] 2		[2] 1			
Manitoba	C				[2] 1													
Ontario	C	[2] 2		1	3													
Quebec	C				[2] 2													
Saskatchewan	C	[2] 1		1											[2] 3			
Canary Islands: Santa Cruz de Tenerife	C								1									
Ceylon: Colombo	C		2															
Chile: Chuquicamata	C				1	1												
China:																		
Amoy	C	4		4	2					1								
Canton	C	2																
Dairen	C	4	21	29	8	1			1									
Foochow	C	P	P	P	P		P		P		P		P		P		P	
Hangchow	C	2	1	3	1													
Hankow	C	11	11	4														
Hong Kong	C	12	10	1														

Nanking	C		2	1	3													
Shanghai	C	3	12	12	2	1	1	3				1			1		1	
Swatow	C			3								1						
Tientsin	C	8	2	7		1												
Tsingtao	C	13	9	3		1												
Chosen. (See table below.)																		
Colombia	C	25	26	44						3			[2] 53	58				
Barranquilla	C		1															
Bogota	C		3			1	9											
Dahomey. (See table below.)																		
Ecuador. (See table below.)																		
Egypt:																		
Dakahliya	C	20	13	2														
Gharbiya	C			1														
Provinces	C		1	1														
Eritrea	C								5		6	6	2		5			
Asmara	C																1	3
France. (See table below.)																		
French Somaliland	C	1																
Great Britain: England and Wales	C			1														
Greece: Salonika	C	1	14	64			2	2	2	2	2	2	2					
Guatemala. (See table below.)																		
Honduras: Tela	C	6		4	P											2		
India	C	45,558	37,507	30,153	13,440	2,569	2,662	1,884	1,901	1,560	1,824	1,340						
	D	9,637	8,423	7,225	3,320	612	711	517	508	387	432	322						
Assam	C	32	56	28	6	7	11	17	57	8	11	5	3			2	1	7
Bassein	C		[3] 1															
Bombay Presidency	C	10,497	7,958	5,046	2,273	409	491	313	235	230	251	186	169	142	148	80		
	D	1,970	1,430	957	471	91	81	76	60	55	49	28	28	28	23	10		
Bombay	C	455	284	239	102	20	12	10		12	10	6	3	5	4	3	1	3
	D	257	176	159	69	10	8	5		10	6	4	3	2	1	2	1	
Calcutta	C	433	246	128	56	7	14	11	11	10	6	7	5	6	3	2	4	4
	D	326	188	109	40	4	9	4	8	2	5	5	2	3	2	1	1	1
Central Provinces and Berar	C	3,100	2,213	2,345	651	117	60	38	40	85	37	37	12	28	35	337	8	
Cochin	C	2														1	3	1
Karachi	C	43	23	26	7	2	2		1	2		1				1		1
Madras Presidency	C	4,366	2,694	3,190	[illegible]	628	607	716	857	657	604	537	516					
	D	720	559	624	402	107	101	118	135	112	119	106	93					
Madras	C	47	22	24	10	1	3	3	2	1	1	5	2	2		1		
Moulmein	C		1	5	6	2		4	8	4	4	1						
Negapatam	C	20	13	8	6	13	1			3	1			2			2	
Northwest Frontier Province	C				9	1	1			4	2							
[3] Imported.																		
Punjab	C	133	443	430	168	30	12	10	14	6	9	16	37	17	30	16	18	35
Rangoon	C	95	59	25	16	1	2	2	2	1		1	1				1	
Tuticorin	C	28	5	11	19	8	3		9	5	6	4	1	1	2	4	1	4
Vizagapatam	C	119	58	40	14	6		1	2	5	1	2	10	1	1	9	4	4

[1] A report dated Oct. 25, 1935, states that 19 cases of smallpox had been reported in Entre Rios Province, Argentina.
[2] For 2 weeks.
[3] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935: 3	10	17	24	31	September 1935: 7	14	21	28	October 1935: 5	12	19	26
India (French):																		
Chandernagor	C	19	4	5	3					4	1	2	1	1				
Karikal	C	32	19	39	21	8	3	15	4	14	7	2	2	1	13			
Pondichery	C	96	59	61	50	9	10	12	12	8	13	6		3	2			
	D	78	51	48	41	8	8	11	12									
Indo-China (see also table below):																		
Haiphong	C	4	7	3	2	1												
Iran	C	1	11	7				1		1			1	2	4	3		
Teheran	C		2	3	1						2				1			
	D		2	1									1					
Iraq	C	11	18	3		4		1	4						3	7		
Arbil	C	2	1				1											
Baghdad	C			1														
Basra	C	2													1			
Mosul liwa	C	2																
Japan (see also table below)	C		23															
Kawasaki	C				1													
Kobe	C			1														
Mizuna Migifu Prefecture.[4]																		
Nagoya	C			5														
Osaka	C		1															
Taiwan	C	1																
Lithuania	C				1													
Mexico (see also table below):																		
Chihuahua	C	11	[3] 2															
Guadalajara	D		1	5	2				1			2						1
Mazatlan	C	1																
Mexico, D. F	C	54	108	135	32	18	18	6	3	6	8	9	2					
Monterrey	C	2															1	
San Luis Potosi	D	1			2			2			2	1		1				
Morocco. (See table below.)																		
Mozambique. (See table below.)																		
Nigeria	C	399	292	389	472		73	11	40		[5] 272	18						
Lagos	C			1														
Niger Territory. (See table below.)																		

Nyasaland (See table below)																		
Palestine	C		3		--													-
Peru (See table below)																		
Poland	C				1			1										
Portugal (see also table below)																		
Lisbon	C	2		1	1		1			1	1		1			1	1	1
Oporto	C		1	1	2													
Portuguese East Africa	C	2	7															
Salvador (See table below)																		-
Saudi Arabia	C		24	14	7	1												
Siam Bangkok	C				6													-
Sierra Leone	C	196	64	31	47	[2] 95		[2] 165		[2] 84		[2] 149		[2] 139				---
Freetown	C				6	[2] 2		[2] 1				[2] 2						--
Spain	C	36	38	45	38		5	2	3	3	2		5	5			5	--
Straits Settlements Singapore	C	7	6	7	16	2	4	1	2	3		1						---
Sudan (Anglo-Egyptian)	C	23	6	2	2	3	1		3									--
Syria	C	1																
Tripoli	C															1		- -
Tunisia	C		1															-- -
Turkey (See table below)																		--- -
Union of Soviet Socialist Republics (See table below)																		

[2] For 2 weeks
[4] A report dated June 11, 1935 states that 10 deaths from smallpox had occurred at Mizuna Migifu Prefecture Japan
[5] For 3 weeks

On vessels

S S *Jinkai Maru* at Singapore from Miike	1 case	Apr 3 1935
S S *Ozarda* at Tuticorin from Akyab	1 case	Apr 3 1935
S S *Ekma* at Rangoon from Calcutta	1 case	Apr 12 1935
S S *Ipoh* at Penang from Singapore	1 case	Apr 12 1935
S S *Hong Peng* at Singapore from Amoy	1 case	Apr 17 1935
S S *Anhui* at Singapore from Hong Kong	1 case	Apr 18 1935
S S *Jalagopal* at Rangoon from Chittagong	1 case	Apr 19 1935
S S *Nagasaki Maru* at Nagasaki from Shanghai	1 case	May 10 1935
S S *Karoa* at Singapore from Calcutta	1 case	May 29 1935

On vessels—Continued

S S *Anshun* at Singapore from Hong Kong	1 case	June 1 1935
S S *Cremer* at Singapore from Amoy	1 case	June 4, 1935
S S *Van Heutsz* at Singapore from Amoy	1 case	June 18 1935
S S *Chitose Maru* at Nagasaki from Dairen	2 cases	July 2, 1935
S S *Perala* at Aden from Massawa	1 case	July 13 1935
S S *Englistan* at Rangoon from Gopalpore	1 case	July 30 1935
S S *Hong Kheng* at Singapore from Amoy	2 cases	Aug 1 1935
S S *Barenfels* at Gibraltar	1 case	Aug 23 1935
S S *Talamba* at Rangoon from Madras	1 case	Sept 9 1935

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		April 1935	May 1935	June 1935	July 1935	August 1935	September 1935
Belgian Congo	C	151	165	108	197	261	303
Bolivia	C	36	33	44	47	30	57
Chosén	C	211	157	102	47		
Dahomey	C				7	2	
Ecuador	C	19	20	14			
Quito	C	11	3	8			
Finland	C	1		1			
France	C	8	15	57	60	1	6
Guatemala	C						4
Indo-China (see also table above)	C	552	303	210	203	138	103
	D	92	53	57	31	30	16
Japan (see also table above)	C	6	45	26			
Mexico (see also table above):							
Agua calientes State—							
Aguasacalientes	C	8		3	3		
Campeche State	C			2	1		
Chihuahua State	C			4			
Chihuahua	C			3			
Guanajuato State	C				4	2	
Leon	C	7		13	2	2	
Hidalgo State	C			1			
Jalisco State	C			10	10	1	
Guadalajara	C			5	2	1	
Lower California	C				3		

Place		April 1935	May 1935	June 1935	July 1935	August 1935	September 1935
Mexico—Continued.							
Mexico State	C			1	1		
Mexico D. F.	C			140	54	35	
Mexico city	C	125		118	41	31	
Morelos State	C			1			
Nuevo Leon State	C			7			
Oaxaca State	C	5		2		23	
Puebla State—							
Puebla	C	7		6	2	1	
Queretaro State	C			5			
San Luis Potosi State	C				5	5	
San Luis Potosi	C			5	3	5	
Vera Cruz State	C					3	
Vera Cruz	C					1	
Morocco	C	8	13	12	5		1
Mozambique	C	3				2	37
Niger Territory	C	246	797		174	209	
Nyasaland	C	2	1	37	35		
Peru	C	15	28	3	10	154	
Portugal (see also table above)	C	25	41	76	38		
	D	1	5	5	2		
Salvador	C				35	2	
Turkey	C	1	13	30	9		
Union of Soviet Socialist Republics	C	144	255	135			

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	Week ended— July 1935 6	13	20	27	August 1935 3	10	17	24	31	September 1935 7	14	21	28	October 1935 5	12	19
Algeria:																				
Algiers Department	C	18	38	43	5	11	2					1					1			1
Algiers	C		2	2																
Constantine Department	C	84	23	97	17	6	8	5		1	1		1		1	2	1	1	3	1
Bone	C														1	1				
Constantine	C	3	2													1			1	
Philippeville	C			5		1	1													
Oran Department	C	3	2	4	2		15													
Southern Territories	C	3	20																	
Australia: Queensland	C					1	1			1										
Basutoland	C							11												
Belgian Congo	C																		1	
Bolivia. (See table below.)																				
Bulgaria	C	2															1			
Chile	C	333	414	363		89	107	86	67	99	82			[1] 203						
Conception	C	28	42	[2] 18		16				[2] 41	11			[1] 18						
Iquique.[4]																				
Santiago	C	207	215	[3] 82		49	38	24	45	44	82			[1] 105						
Valparaiso	C	3	5				1		2	2	1	3		2	7	2	13	3		10
China:																				
Canton	C		1																	
Hangchow	C			2																
Hankow	C				1		1						1				1	1	1	
Harbin [5]	C	5	20	2																
Hong Kong	C															1				
Nanking	C		2	1						1										
Shanghai	C		1	2		1		1			2	1								
South Manchuria Railway Zone	C													2						
Tientsin	C		5	5																
Tsingtao	C	2		1	1				1	1			4	1		2				
Chosen. (See table below.)																				

[1] For 3 weeks.
[2] For 2 weeks.
[3] For 4 weeks.
[4] For the week ended Mar. 9, 1935, 11 cases of typhus fever were reported at San Jose nitrate camp about 42 miles from Iquique, Chile.
[5] A report dated June 25, 1935, states that about 400 cases of typhus fever occurred at Harbin, Manchuria, China.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	Week ended— July 1935 6	13	20	27	August 1935 3	10	17	24	31	September 1935 7	14	21	28	October 1935 5	12	19
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	21	20	12	1	2		1												
Aswan	C	9	41	2																
Asyut	C	1			1	1	1		1		1	1	1							
Beheira	C	243	161	59	8	4	5	2	3	3	1		2		1	1		7	2	
Beni-Suef	C	1	2	2		1			1											
Cairo	C	6	5	1			1			1							1			
Dakahliya	C	14	4	2	2							1								
Damietta	C														1					
Faiyum	C			1																
Gharbiya	C	180	96	119	10	18	4	4	3	4	5	3	1		2					
Girga	C	2										1								
Minufiya	C	125	44	27	3	9	3	5		1					1					
Minya	C	4	4	4			2			1		2								
Port Said	C		1		1	1						1	1	1						
Qena	C		3	1																
Sharkiya	C	20	6	9	1	1	1	1					1							
Provinces	C	675	502	255	26	40	17	15	8	11	8	8	6	8	4	4	2	7	3	1
France. (See table below.)																				
Greece. (See table below.)																				
Guatemala. (See table below.)																				
Hawaii Territory—Honolulu	C				1							1							2	
Hungary	C	4	17	5																
Iran	C	132	88	98	7		16	6	4	3	6	7	9	9	6	3	3		2	
Teheran	C	1	15	22	4		5	5					1	1	1	1				
Iraq:																				
Baghdad	C												1							
Basra liwa	C															1				
Sulaimani liwa	C	42	14	9																
Irish Free State:																				
Cork County—Castletown	C		1																	
Waterford County—Lismore	C			1																
Japan: Tokyo	C			13	1															
Latvia. (See table below.)																				
Lithuania	C	42	37	21	1	6	3	2	3			3			1	2				

Mexico (see also table below)																				
Guadalajara	D			1			1													------
Mexico, D F	C	49			14	20		60		30	36	33	43	36	42	26	30			-----
Torreon	D														1		1			----
Morocco	C	112	7	86	14	24	16	8	10	5	1	2	1		1		2			1
Palestine																				
Haifa	C	2	3	3	[6]2		1				2	1	4		6	3	12	1	3	1
Jaffa	C	1	5																	-
Panama Canal Zone (See table below)																				
Paraguay Asuncion	D					1														
Peru (See table below)																				
Poland	C	597	597	445	48	52	41	34	33	30	22	24	21	14	19	9	14	29	30	28
	D	35	42	21	1	3	5	1	2	4	1	2	1	1	1			2		1
Portugal (See table below)																				
Rumania (See table below)																				
Saudi Arabia	C		3																	
Straits Settlements Singapore	C	3	2						1				1			1				
Trans Jordan	C	17	11	13									1	2				1	1	- -
Tunisia																				
Tunis	C	32	9	3			1		1					3		1				
Provinces	C	225	158	115	13	34	25	16	17	15	15	9		12	4	2		1		1
Turkey (See table below)																				
Union of South Africa (See table below)																				
Union of Soviet Socialist Republics (See table below)																				
Yugoslavia (See table below)																				
On vessel S S *Agamemnon* at London	C															1				----

[6] Imported
[7] Includes 3 imported cases

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		April 1935	May 1935	June 1935	July 1935	August 1935	September 1935
Bolivia	C	86	127	111	114	150	140
China: Manchuria—Harbin	C		45	25			
Chosen	C	198	254	135	40		
Czechoslovakia	C	13	8	11	33	3	
France	C					1	
Greece	C	3	2		5	1	
Guatemala	C	35	7	6	22	24	43
Latvia	C		4		1		
Mexico (see also table above):							
Aguascalientes State:							
Aguascalientes	C			1			
Coahuila State	C					1	
Durango State	C				1		
Guanajuato State	C			3	9	7	
Leon	C			1	5	6	
Hidalgo State	C				6		
Jalisco State	C					8	
Guadalajara	C			3	1	1	
Mexico State	C				2	15	
Mexico D. F.	C			95	178	159	
Mexico City	C	59		91	170	155	
Michoacan State	D			1			
Nayarit State	D					6	
Mexico (see also table above)—Con.							
Oaxaca State	C			1	5	6	
Puebla State	C				7		
Puebla	C			4	5	9	
Queretaro State	C			1		5	
San Luis Potosi State	D				11		
San Luis Potosi	C			5	1	1	
Sonora State	C					4	
Vera Cruz State	C			1		7	
Vera Cruz	C					2	
Panama Canal Zone	C	1	2	1	1		
Peru	C	87	96	19	16	3	
Portugal	C	8	2	3	4		
Rumania	C	494	574	300	59	33	26
Turkey	C	25	69	54	42	34	10
Union of South Africa:							
Cape Province	C	70	128	172	79	97	
Natal	C	30	5	2	2	4	
Orange Free State	C	26	44	123	37	37	
Transvaal	C	83	12	25	3	6	
Union of Soviet Socialist Republics	C	8,414	7,196	4,643			
Yugoslavia	C	104	64	131	49	31	11

YELLOW FEVER

[C indicates cases; D, deaths; P, present

Place		Mar. 31–Apr. 27, 1935	Apr. 28–May 25, 1935	May 26–June 29, 1935	Week ended—														
					July 1935				August 1935					September 1935				October 1935	
					6	13	20	27	3	10	17	24	31	7	14	21	28	5	12
Bolivia: Santa Cruz Department—Chuchio.[1]																			
Brazil:																			
Goyaz State	C			6															
	D	10	6																
Maranhao State	C			1															
Mato Grosso State	C			2	9														
Minas Geraes State	C			14	4		2			1			8						
	D		9	8															
Para State	C			1															1
Sao Paulo State	C			1								1							
Colombia:																			
Intendencia of Meta	C												1						
Acacias	D								1										
Restrepo	C		1				1												
Dahomey:																			
Parakou	C			[2] 1															
Porto Novo	C						1												
Gold Coast:																			
Bawku	C																		3
Cape Coast	C									1									
Tamale	C															1			
Sudan (French): Koutiala.[3]																			
Togo:																			
Agoueve	C		1																
Kouma	C		1																
Sokode	C		1																

[1] During the month of June 1935, 1 case of yellow fever was reported at Chuchio, Santa Cruz Department, Bolivia

[2] Suspected.

[3] During the week ended Oct. 26, 1935, 1 suspected case of yellow fever was reported at Koutiala, French Sudan.

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C WILLIAMS, *Chief of Division*

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It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 50 DECEMBER 6, 1935 No. 49

STUDIES ON THE MINIMAL THRESHOLD OF THE DENTAL SIGN OF CHRONIC ENDEMIC FLUOROSIS (MOTTLED ENAMEL)

By H. TRENDLEY DEAN, *Dental Surgeon*, and ELIAS ELVOVE, *Senior Chemist, United States Public Health Service*

Since the publication of the results of three independent studies in 1931 (*1*), (*2*), (*3*), associating the presence of fluoride in the drinking water with the endemic hypoplasia of the permanent teeth known as mottled enamel, the question of what constitutes a permissible amount of fluoride in a domestic water supply frequently arises. Attempts to prevent the further development of this disease by removing the toxic amounts of fluorides present in the water is naturally dependent upon reliable and definite information concerning this permissible maximum, or minimal threshold.

For public health purposes we have arbitrarily defined the minimal threshold of fluoride concentration in a domestic water supply as the highest concentration of fluoride incapable of producing a definite degree of mottled enamel in as much as 10 percent [1] of the group examined. This group should consist of at least 25 children 9 years of age or older, who, since birth, had continuously used the water under investigation for both drinking and cooking. In cases where the examination of the first 25 children discloses an incidence of less than 75 percent it has been found desirable, if not necessary, to increase the number in the group to 50 or more. In other words, when more than 25 percent are diagnosed as "normal" or "questionable", the increase in the number of the group examined is necessary to compensate for fluctuations in sampling and their possible effect on the computation of the community mottled-enamel index. The thorough surveys thus far made, though limited in number, have indicated that, when an adequate number of children are examined, there is orderly uniformity in the group response to the fluoride concentration, with regard both to the incidence and the percentage distribution of severity, particularly the latter.

An attempt to determine the minimal threshold by a correlation of clinical observations with chemical findings is obviously unwarranted until certain variables intimately associated with the problem

[1] A community is given a "negative" mottled-enamel index when "less than 10 percent of the children show 'very mild' or more severe types of mottled enamel" (Ref 8.)

are removed. Chief of these variables are (*a*) discontinuities in time of exposure, and (*b*) changes in the fluoride content of water supplies.

In considering the time variable it must be borne in mind that the causative factor of mottled enamel is probably operative during the entire period of calcification of the permanent teeth. An observed effect, therefore, may be the result of a comparatively low fluoride concentration operating during the entire period, or a somewhat higher concentration for a shorter period. In other words, in endemic areas where the common water supply contains fluoride in concentrations only slightly above the minimal threshold, the time of risk of exposure would probably have to be continuous with the period of calcification On the other hand, in areas where water of a high fluoride concentration is used, its use during a fractional portion of the period of calcification is sufficient to produce the signs of mottled enamel. A careful analysis of the Bauxite survey (*4*) illustrates this point. Hence, in order to eliminate the influence of this variable, clinical observations were made only on those children whose histories showed that the water in question was used continuously since birth for both drinking and cooking. Breaks in continuity not exceeding a total of 30 days in any one calendar year are excepted

The other major variable relates to changes in the fluoride content of the water supply. Any attempt to correlate clinical observations with a single fluoride determination of a common water supply associated with chronic endemic dental fluorosis clearly introduces a possible error. While it is true that fluctuations in mineral content of a water are least when the water is obtained from deep wells, nevertheless there may be changes in the physical set-up or source of the municipal water supply during the child's lifetime which would cast doubt upon any correlations which might be made Stating it differently, the amount of flouride in a water sample taken at the time of a clinical survey of a group, for instance, of 12-year-old children, would be of little value unless the water supply had undergone no changes during a period concomitant with the life of the group of children examined.

Furthermore, when dealing with surface waters or shallow wells the seasonal and annual rainfall and other meteorological conditions introduce factors which would make it impossible to draw reliable conclusions from a single fluoride determination of the water in question. In this report the mean annual fluoride content, later referred to, represents an arithmetical mean of 12 consecutive monthly samples.

Eleven cities were chosen for study. In 6 of these mottled enamel was known to be endemic (*5*); 5 others, with as nearly as possible comparable conditions, but reported as nonendemic, were selected for "controls." These cities contained populations sufficiently large to

permit the necessary sifting and elimination of those children whose histories failed to show an exclusive use of the municipal water from birth. Six of the cities have populations (census of 1930) in excess of 10,000, the largest being more than 50,000. From each of these cities 12 consecutive monthly water samples of the municipal water supply were collected and forwarded to the National Institute of Health for fluoride determinations.

A report of a survey of four of these cities, prefaced by a description of their municipal water supply follows. These four cities are Colorado Springs, Colo.; Monmouth and Galesburg, Ill.; and Pueblo, Colo.

DESCRIPTION OF THE MUNICIPAL WATER SUPPLIES [2]

Colorado Springs, Colo.—The municipal water supply of Colorado Springs is obtained from surface sources; namely, melted snow from the south, west, and east slopes of Pike's Peak, and the east and west slopes of Mount Baldy. The water is stored in a system of seven mountain reservoirs, located at altitudes ranging from 9,300 to 12,000 feet. From this chain of reservoirs the water is conveyed through a transmission system to the settlers at Manitou, thence by gravity to three distributing reservoirs known as the "High Line", "Mesa No. 1", and "Mesa No. 2." These distributing reservoirs are located on a mesa just west of the city, and from these reservoirs begin the city distribution system and service mains. Water impounded in both the High Line and the Mesa Reservoirs is obtained from a common source and represents the type [3] of water used by the inhabitants of the city for at least the past 20 years.

Monmouth, Ill.—The municipal water supply of Monmouth is obtained from two wells 2,445 feet in depth. The first well was completed early in 1925, the second in 1926. Both wells obtain their water from the "Potsdam" stratum of the Cambrian sandstone. During the first 6 or 8 months of 1925 some water from the old wells in the St. Peter sandstone was added to that obtained from the first well, temporarily constituting a mixed supply. The percentage of the municipal water obtained from the old wells is not known, as the pumping records were not available. The second Cambrian well was completed early in 1926, and since that date all municipal water has been obtained from these two wells.

Both wells have 90 feet of 20-inch copperoid casing, 400 feet of 18-inch cast-iron casing, and 1,200 feet of 12-inch cast-iron casing. Water from the St. Peter sandstone, which is found between 1,100 and 1,250 feet in this locality, is apparently cased off. No strainers which permit mixture of water from higher strata are present in the casing. There has been practically no change in the water level of either well since installation. Water from these two wells is more than ample for municipal needs; one well is pumped during the day and the other during the night.

Galesburg, Ill.—The public water supply of Galesburg is obtained from two 2,414-foot wells drilled to the Cambrian sandstone. The first well was drilled in

[2] The description and data concerning these municipal water supplies were furnished by Messrs. B. B. MacReynolds, George M. Crow, H. O. Chambers, and D. P. Porter, superintendents of the Water Departments of Colorado Springs, Monmouth, Galesburg, and Pueblo, respectively.

[3] The only exception to the foregoing is that in the extreme southwestern panhandle-like projection of the westward city limits, a few lateral distribution mains lead off from the Bear Creek pipe line before ti connects with the transmission lines between Manitou and the Mesa Reservoirs. A small fraction of the population is served in this manner; the source, however, of the Bear Creek water is not far (½ mile) from Lake Moraine, one of the main reservoirs in the city mountain system. Because of this possible variable, children residing in this section of the city were not included in the group upon which the mottled enamel index was based.

1919, installed in 1920, and has been in continuous use since. In 1928 a second well of the same depth was completed. The casing record of both wells indicates that water from the St. Peter sandstone is completely cased off. Since 1928 these two wells have furnished practically all (more than 98 percent) of the water used by the population.

Between 1924 and 1928 the common water supply consisted of approximately 60 percent from the first "Potsdam" (2,414-foot) well and 40 percent from wells in the St. Peter sandstone. The latter wells (Central Fire Station and Brooks Street Station) were drilled in 1917 and 1918, and are 1,252 and 1,245 feet deep, respectively. Both of these latter wells are cased to the St. Peter sandstone so as to exclude water from higher levels. Water history prior to 1924 is omitted, as the time would be prior to the year of birth of the group of children examined and, therefore, not relevant.

Pueblo, Colo.—The municipal water supply of Pueblo is obtained from surface sources, namely, the Arkansas River. The city of Pueblo has two water systems, all of the city north of the Arkansas River being supplied by what is known as the "Pueblo Water Works, District No. 1", or "North Pueblo water supply", while that half of the city located south of the Arkansas River obtains its water from another system known as the "Pueblo Water Works, District No. 2", or "South Pueblo water supply." Both systems, however, obtain water from the Arkansas River.

The monthly water samples collected by the Pueblo City Health Department were all of the North Pueblo supply. Consequently the clinical examinations were limited to the children residing in that half of the city. A description of the North Pueblo supply follows:

Water is taken from the Arkansas River about 3 miles west of the city and diverted into reservoirs. In 1925 there were 6 reservoirs, and in 1928, 1 more was added. Treatment consists of preliminary sedimentation, coagulation with aluminum sulphate, followed by sedimentation and disinfection with ammonia-chlorine. Reservoirs nos. 1, 2, 3, and 4 are used for preliminary sedimentation, and reservoirs nos. 5, 6, and 7 for sedimentation after coagulation. The treatment does not include filtration. Prior to 1928 iron sulphate and lime were used as a coagulant, and prior to November 1931 chlorine was used without ammonia.

The North Pueblo water department has been obtaining water from this same source for the last 46 years. It might also be noted that between November 1933 and October 1934, the period during which samples were taken, there was an exceptionally low flow of the Arkansas River.

In order to study clinical conditions in a group whose water history showed exclusive use of the water supply upon which the chemical determinations were made, examinations were limited to the 9-year-age group present in the school on the date of the examination. The selection of the 12-year group would have been more desirable, as practically all permanent teeth excepting the third molars are present in the mouth at that age. However, the present Monmouth water supply had been in use only 9 years at the time of the examination, and it was deemed advisable to limit the examination to the age group that had used the present supply exclusively since birth rather than

[4] The field surveys at Monmouth and Galesburg, Ill., were made during October 1934; those at Colorado Springs and Pueblo, Colo., during April 1935.

introduce an additional variable by selecting a higher age group. The same age group was then selected at Colorado Springs and Pueblo in order that the resultant data might be comparable. Brief reference will be made later to a variable present in the Galesburg water supply between 1924 and 1928.

The examinations were conducted in the following manner: First, all children who stated that they had not lived in the city continuously (30 days in a calendar year excepted) or had not used the municipal water supply exclusively were eliminated. The remainder were then called into the office of the school principal, one or two at a time, and further questioned as to their residence and water history. This cross-questioning often revealed breaks in continuous residence such as living a year or more in some nearby town or vacation trips in excess of 30 days. In addition there were a few instances of children who had lived in the community continuously but who had obtained their domestic water from other than the public supply. Children coming under these classifications were eliminated from further study.

If the questioning of the child elicited a history of continuous residence in the city and an exclusive use of the municipal water, the examination continued. The findings were recorded on a special card designed for mottled enamel surveys (fig. 1). The examinations were made in a good light with the child seated facing a window. Mouth mirrors, free of blemishes, and new explorers [5] were utilized in making the examination. In addition to mottled enamel, other defects of the enamel such as caries, present or past (fillings), pits and fissures, hypoplasias, etc., were recorded.

Following the examination, the home of each child was visited, and the information recorded in fig. 1 under "III. Water History" was carefully rechecked by an interview with the child's parent. This recheck revealed additional inaccuracies in residence or water supplies which the child either did not know or had forgotten. Under the conditions of this survey it was possible to find only approximately 20 percent in this age group who could demonstrate a continuous residence and an exclusive use of the city water during their lifetime. The results obtained are summarized in tables 1, 2, and 3.

In evaluating the Galesburg study, the variable in the city water supply between 1924 and 1928 must be borne in mind. However, it should be noted parenthetically that of the 15 individuals showing mottled enamel among the 39 rechecked cases, 11 of them had no erupted bicuspids. In the remaining 4 with bicuspids present, mottled enamel was observed in the bicuspids of each individual. A resurvey of Galesburg should be made 4 or 5 years later in order to determine the actual mottled enamel index.

[5] Explorers used were SSW no. 5, or equal.

UNITED STATES PUBLIC HEALTH SERVICE
DENTAL HYGIENE INVESTIGATIONS
MOTTLED ENAMEL STUDY

NAME OR NUMBER OF SCHOOL ....

EXAMINER ....

CASE NO. ....

STATE .... NAME .... LAST FIRST

CITY ....

AGE .... YEARS MONTHS SEX .... COLOR ....

RURAL* ....

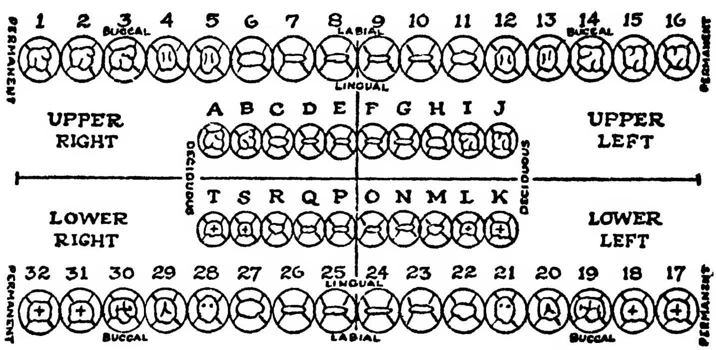
COUNTY .... GRADE .... DATE ....

* IF RURAL, NOTE DIRECTION AND MILES FROM NEAREST TOWN.

NOTE: I. AND II. MUST BE FILLED IN PRIOR TO III.

I. CLINICAL EXAMINATION. THE DIAGRAM MUST PRESENT DEFINITE INFORMATION CONCERNING EVERY TOOTH SHOWN IN IT. DRAW AN X THROUGH EACH MISSING TOOTH. DRAW A CIRCLE AROUND THE NUMBER OR LETTER OF EACH TOOTH THAT IS PRESENT AND NORMAL. OUTLINE AND FILL IN CAREFULLY ON TOOTH DESIGN THE AREA OF CARIES OR FILLING PRESENT. SYMBOLS TO BE PLACED UNDER APPROPRIATE TEETH:

UNERUPTED 0; EXTRACTION INDICATED √; CROWN #; PONTIC £.
MOTTLED ENAMEL: WHITE OPAQUE =. BROWN STAIN +.



II. CLASSIFICATION OF MOTTLED ENAMEL DIAGNOSIS. FOR DESCRIPTION OF DEGREES OF SEVERITY, SEE J. A. D. A., AUGUST, 1934, OR P. H. R., MARCH 29, 1935. TO SUMMARIZE YOUR GENERAL IMPRESSION OF THE DEGREE OF SEVERITY, PLACE CHECK (√) IN ONE BOX:

NORMAL ☐ QUESTIONABLE ☐ VERY MILD ☐ MILD ☐
MODERATE ☐ MODERATELY SEVERE ☐ SEVERE ☐

FIGURE 1 (a).—Face of record form.

NOTE: I. AND II. MUST BE FILLED IN PRIOR TO III.

III. WATER HISTORY

RESIDENCE FROM BIRTH IN CHRONOLOGICAL ORDER *	DURATION (YRS.)	SOURCE OF DRINKING WATER **					
		MUNICIPAL	DEEP WELL	SHALLOW WELL	CISTERN	SPRING	OTHER
BIRTH PLACE							
2.							
3.							
4.							
5.							
6.							
7.							

WAS ABOVE HISTORY CONFIRMED BY INTERVIEW WITH CHILD'S PARENTS? YES ☐ NO ☐

NAMES OF BROTHERS OR SISTERS IN THE SAME SCHOOL: ______

REMARKS: ______

* IGNORE CHANGES IN A DURATION OF RESIDENCE LESS THAN THIRTY DAYS IN ONE CALENDAR YEAR.

** MUNICIPAL: DESCRIBE SEPARATELY AND IN DETAIL STATING TYPE AND HOW LONG PRESENT SUPPLY HAS BEEN USED. NOTE ALL CHANGES CONCOMITANT WITH LIFE OF AGE GROUP EXAMINED.

DEEP WELL: STATE DEPTH AND CASING, OBTAIN LOG IF AVAILABLE.

SHALLOW WELL: STATE WHETHER DUG OR DRIVEN AND APPROXIMATE DEPTH.

CISTERN: NOTE WHETHER CISTERN IS TIGHT OR LEAKY.

SPRING: STATE WHETHER HOT OR COLD AND TYPE OF GEOLOGICAL FORMATION THROUGH WHICH ISSUING, IF POSSIBLE.

OTHER: WRITE IN TYPE OF WATER SUPPLY, I.E., OPEN OR IRRIGATION DITCHES, CREEKS, ETC.

FIGURE 1 (b).—Back of record form.

TABLE 1.—*Summary of data with relation to continuity of residence and concomitant use of the municipal water*

	Colorado Springs	Monmouth	Galesburg	Pueblo (north of Arkansas River)
1. Number of grade public schools in city	10	4	9	8
2. Number of grade public schools in which examinations were held	5	4	4	4
3. Number of 9-year old pupils in attendance in (2) on date of examination	253	142	187	215
4. Number of pupils in (3) whose histories on questioning indicated constant residence and concomitant use of municipal water and who were examined	79	38	57	83
5. Percentage of age group present examined under (4)	31.2	26.7	30.5	[1] 38.6
6. Number of schedules eliminated by house-to-house recheck	25	9	18	34
7. Percentage of total present showing constant residence and water history	21.3	20.4	20.8	22.8

[1] This percentage is slightly higher than the others because of the dual water supply in Pueblo. Certain children were doubtful whether they had used the North Pueblo supply exclusively, but were nevertheless examined. When the house-to-house recheck revealed use of the South Pueblo water supply during some period of their life, these schedules were eliminated.

TABLE 2.—*Distribution according to severity* [1] *of those examined in (4), table 1*

City	Number of children	Normal	Questionable	Very mild	Mild	Moderate	Moderately severe	Severe	Incidence
		Number							
Colorado Springs	79	15	11	24	14	13	2	0	67.1
Monmouth	38	14	8	14	2	0	0	0	42.1
Galesburg	57	26	1	15	3	2	0	0	35.1
Pueblo	83	73	8	2	0	0	0	0	2.4
		Percent							
Colorado Springs	79	19.0	13.9	30.4	17.7	16.5	2.5	0	67.1
Monmouth	38	36.8	21.0	36.8	5.3	0	0	0	42.1
Galesburg	57	45.6	19.3	26.3	5.3	3.5	0	0	35.1
Pueblo	83	88.0	9.6	2.4	0	0	0	0	2.4

TABLE 3.—*Distribution according to severity* [1] *of those remaining after recheck (6), table 1*

City	Number of children	Normal	Questionable	Very mild	Mild	Moderate	Moderately severe	Severe	Incidence
		Number							
Colorado Springs	54	10	8	14	10	11	1	0	66.6
Monmouth	29	10	5	12	2	0	0	0	48.3
Galesburg	39	16	8	11	3	1	0	0	38.5
Pueblo	49	44	3	2	0	0	0	0	4.0
		Percent							
Colorado Springs	54	18.5	14.8	25.9	18.5	20.4	1.8	0	66.6
Monmouth	29	34.5	17.2	41.4	6.9	0	0	0	48.3
Galesburg	39	41.1	20.5	28.2	7.7	2.6	0	0	38.5
Pueblo	49	89.8	6.2	4.0	0	0	0	0	4.0

[1] For a detailed description of the various gradations of mottled enamel severity, see reference 8.

As has been noted previously, samples of the waters were obtained monthly. The fluoride content was estimated colorimetrically by means of the zirconium-alizarin reagent (*6*). The results obtained are given in table 4.

TABLE 4.—*Fluoride (F) content of monthly samples*

Month	Colorado Springs	Monmouth	Galesburg	Pueblo
	Parts per million			
1933				
November	2.6	1.6	1.8	0.6
December	2.9	1.6	1.8	.6
1934				
January	2.9	1.6	1.8	.6
February	3.0	1.7	1.9	.6
March	3.0	1.7	1.9	.6
April	3.0	1.7	1.9	.7
May	2.9	1.9	1.8	.6
June	2.3	1.7	1.9	.3
July	2.0	1.8	2.0	.5
August	1.8	1.8	1.9	.6
September	1.9	1.8	1.9	.6
October	2.0	1.6	1.8	.6
Mean annual fluoride content	2.5	1.7	1.86	0.57

While it may seem reasonable that the mottled enamel index will be found to depend entirely on the fluoride concentration of the drinking water, it is also possible that other constituents of the water may have some influence on the activity of the fluoride. For this reason we believe that a careful survey of a community for mottled enamel should, for the present at least, include also a chemical analysis of the drinking water for constituents other than fluoride.

Results of the chemical analyses of the waters [6] are given in table 5.

TABLE 5.—*Analyses of the waters used*

	Colorado Springs	Monmouth	Galesburg	Pueblo (north of Arkansas River)
	Parts per million			
Residue on evaporation	46.5	1,031.5	1,080.0	588.0
Loss on ignition	9.0	62.7	51.2	75.0
Fixed residue	37.5	968.8	1,028.8	513.0
Silica (SiO_2)	16.0	14.0	12.8	20.0
Iron (Fe)	.12	.18	.15	.14
Aluminum (Al)	.5	.3	.3	0
Calcium (Ca)	7.2	69.3	62.2	83.6
Magnesium (Mg)	.6	26.6	25.7	27.3
Sodium and potassium (calculated as Na)	5.4	249.9	288.8	54.9
Bicarbonate (HCO_3)	24.4	283.0	296.5	187.8
Sulfate (SO_4)	4.5	412.1	341.4	244.5
Nitrate (NO_3)	1.0	3.3	3.3	5.2
Chloride (Cl)	1.0	117.0	196.0	16.5
Fluoride (F)	2.0	1.8	1.9	.6
Phosphate (PO_4)	0	0	0	0
Boron (B)	0	.8	.9	0

[6] These samples of water from Monmouth and Galesburg, Ill., were received in September 1934, and those from Colorado Springs and Pueblo, Colo., were received in October 1934. Assistant Chemist O. G. Romsburg carried out the determinations other than fluoride and boron, using mostly the methods given in the Standard Methods of Water Analysis of the American Public Health Association. The boron determinations were made essentially by the method of Foote (*7*).

DISCUSSION

An analysis of the field data indicates the care that must be exercised in checking the continuity of residence and water history of the children under examination. As a result of checking the water histories as given by the child by a follow-up recheck with the parents, only about 20 percent of the children in the age group studied and present in the school on the day of the examination were found to have had an unbroken history of residence and constant use of the city water supply.

As a result of the house-to-house recheck, the mottled enamel incidence increased, however, only 6.2 percent in Monmouth, 3.4 percent in Galesburg, 1.6 percent in Pueblo, and decreased 0.5 percent in Colorado Springs. For the purpose of computing an approximate mottled enamel index of a community it would appear on the basis of these examinations that, while it is necessary to obtain accurate water histories by careful questioning, a house-to-house recheck may be omitted. The errors in the history as given by the child on individual questioning are apparently largely compensatory, not cumulative, and the effect on the figures representing the distribution of severity and incidence is comparatively small.

As was indicated in the introduction, the study undertaken included 6 cities where mottled enamel was known to be endemic, and 5 other cities with comparable conditions were included as "controls." The latter were considered as controls because, on the basis of available reports, they were apparently free of mottled enamel. Monmouth was one of the six cities which had been reported as having mottled enamel while Galesburg, because it was reported as apparently free of mottled enamel, was chosen as the "control" for Monmouth. But, as already indicated above, a careful survey shows that Galesburg does not differ materially from Monmouth, and both may be given the same mottled enamel index.

A cursory examination of the fluctuating fluoride content of the Colorado Springs municipal water indicates why correlation of clinical observations with a single fluoride determination should be made with extreme caution. In this instance, if the field study had been made in August the index based on the clinical observations would have been correlated with a fluoride content of 1.8 p. p. m. of fluoride, while if the same survey had been made in February, March, or April, the index would have been correlated with a fluoride content of 3.0 p. p. m.

In accordance with previously described means *(8)* of determining the mottled enamel index of a community, the application of this method to the percentage distribution of severity as listed in tables 2 and 3 indicates that the mottled enamel index of Colorado Springs, Monmouth, and Galesburg is "slight", and that of Pueblo is "negative."

ACKNOWLEDGMENTS

The authors are greatly indebted to Dr. O. R. Gillett, Dr. R. C. McMillan, Mr. F. M. Giddings, and Dr. W. E. Buck, city health officers of Colorado Springs, Monmouth, Galesburg, and Pueblo, respectively, for their assistance in collecting and forwarding the monthly water samples, and to Messrs. Hobart M. Corning, Roy Fetherston, O. O. Young, and J. A. Risley, superintendents of education of Colorado Springs, Monmouth, Galesburg, and Pueblo, respectively, for their cooperation and assistance in the field surveys.

SUMMARY

1. The "mottled enamel index" of Colorado Springs, Colo., is "slight." A milder type of mottled enamel is endemic in Monmouth and Galesburg, Ill.; the mottled enamel index of both communities is likewise "slight." In Pueblo, Colo., the index is "negative."

2. The mean annual fluoride (F) content, based on monthly examinations, of the municipal water of Colorado Springs, Colo., between November 1933 and October 1934 was close to 2.5 parts per million. The corresponding mean annual fluoride content of the municipal waters of Monmouth, Ill., Galesburg, Ill., and Pueblo, Colo., was close to 1.7, 1.8, and 0.6 parts per million, respectively.

3. In 4 groups of 9-year-old school children, numbering 142, 187, 215, and 253, respectively, in communities of a fairly stable population, only about 20 percent (minimum, 20.4; maximum, 22.8) were found to have a history of continuous residence and constant use of the municipal water supply from birth.

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A METHOD FOR THE STANDARDIZATION OF ANTIPNEUMOCOCCIC HORSE SERA AND CONCENTRATES [1]

By Lloyd D. Felton, M. D., and Helene J. Stahl, *Department of Preventive Medicine and Hygiene, Harvard Medical School*

The *in vitro* method for the standardization of antipneumococcic sera and concentrates here presented is an outgrowth of observations made during studies on serum antibodies. Preparations from immune serum, in which lessened precipitating activity with the soluble specific substance (SSS) of Heidelberger and Avery was noted, were frequently found to protect mice as well as did the original serum. This was found to be true of serum concentrates, in general, regardless of the method of concentration. In consequence, any method which relied upon the precipitating index as the criterion of serum antibody content gave disappointing results. However, it was noted that, although the precipitating titer of concentrated serum was relatively low, the function of the antibody to combine with SSS was not significantly diminished. This report describes the details of a method based on this combining power of antibody and SSS. A more complete discussion is given in another publication.

The test makes use of the principle of equivalent proportions in the combining of antibody with the specific polysaccharide of Heidelberger and Avery. The purity or degree of refinement of the SSS determines the actual number of antibody units which combines with a definite weight of the polysaccharide, but the combining ratio for any one preparation remains constant over a broad range of dilutions. Furthermore, within certain limits of concentration, the amount of antibody is in direct proportion to the amount of SSS used. This has been proved experimentally and may be shown graphically by plotting the equivalent units of antibody against the corresponding dilutions of SSS expressed in micrograms. Within the limits of polysaccharide concentrations from 10 to 50 micrograms per cubic centimeter, the resulting points fall in a straight line.

In equivalent mixtures of SSS and antibody, no excess of the polysaccharide is demonstrable by macroscopic methods. However, if there is too little antibody in the mixture to react with the total amount of SSS present, the unbound SSS may be precipitated by a second application of antibody. Therefore the "equivalent combining test" is carried out in the two steps which are briefly outlined as follows:

First step.—To a series of increasing serum dilutions is added a constant amount of SSS. The mixtures are thoroughly shaken and incubated for 2 hours at 37° C., after which they are stored over-

[1] This is one of a series of studies carried out in part under a grant from the Influenza Commission of the Metropolitan Life Insurance Co., and in part under a grant from the Pneumonia Fund of Harvard University

night in the cold (4° C.) to insure a stable equilibrium. In the morning, the precipitate formed during this first step is separated from the supernatant fluid, which must be clear and free from particles for the second step.

Second step.—A definite amount of antibody ("indicating serum") is added to these supernatant fluids to indicate by the formation of a precipitate the mixtures in which unbound SSS is present. The first mixture in the series which contains no precipitate, or, in other words, no free SSS, is considered as the "equivalent combining mixture", and the percentage dilution of serum represented is called the "equivalent end point" of that serum.

A stoichiometric relationship exists between the unit value of a serum and its equivalent end point. However, the terms "equivalent end point" and "equivalent combining mixture", as employed in this test, do not represent absolute values, but rather values dependent upon the quality of the SSS preparation used and the sensitivity of the indicating serum. When conditions are uniform, and one polysaccharide preparation is used, the relative combining values of different sera may be translated into units of antibody per cubic centimeter by comparison with a similar value obtained with a standard serum of known unitage. The United States Government serum P 11 may be used as the standard serum, but owing to its low potency (300 type I units and 150 units of type II per cc) too much is required, considering its limited supply, for a satisfactory titration with a good preparation of the polysaccharide. A more economical and convenient standard is a serum containing at least 500 units of each type per cubic centimeter, which has been accurately standardized by the mouse-protection method with P 11 as a control.

The indicating serum is an important factor in the success of the test, for it determines the character of the precipitate by which the end point is chosen. The best for the purpose is a fresh specific immune horse serum of high precipitin titer used in an amount which gives a precipitate with a high dilution of SSS. This precipitate should be well formed, covering the bottom of the tube with a disk which can be seen by reflected light. While it is essential to add enough serum to indicate a small excess of free SSS, the addition of too much serum either altogether inhibits the formation of a precipitate (zone phenomenon), or so changes its character that it is translucent and sticky, and thus hard to read.

The optimum amount of an indicating serum is determined by experiment under the conditions of the test as follows: A uniform volume (0.2 cc) of decreasing dilutions of the serum (1:1, 1:2, 1:4, 1:8, or less, depending upon the serum) is added to 2-cc volumes of 1:1,000,000 SSS, which in reality is the smallest amount of free SSS ordinarily encountered in test mixtures. The mixtures are incubated for 2 hours at 37° C. and allowed to stand at room temperature for

2 hours. The precipitates are recorded, and the smallest amount of serum required to produce a satisfactory disk is chosen for use in equivalent combining tests.

The specific soluble substance of Heidelberger and Avery which is used in the test should be comparatively pure, showing approximately the following results of analysis: Precipitin titer of type I, 1:3,000,000, of type II, 1:5,000,000; nitrogen in type I, 4 percent, in type II, 0.3 to 1 percent; hydrolyzable sugars in type I, 26 to 30 percent, in type II, 40 to 50 percent. The dried material should dissolve completely at pH 7 to give a water-clear or slightly opalescent solution when made up 1:500 in physiological saline.

In addition to the requisites of the standard serum, the indicating serum and the SSS as stated above, there are certain considerations to be observed in the test procedure in order to minimize the experimental error.

The serum increment.—A uniform variation in the test dilutions of serum is desirable for accurate titration. Because of the difference in antibody content of individual sera and concentrates, a uniform dilution increment must be discussed in terms of units rather than volume. In general, reliable results are obtained when the increment is not less than 1 unit nor greater than 5 units. Actually, when the serum contains 300 units per cc, a variation of 5 percent by volume in a series of dilutions is equivalent to 15 units; but a 1 percent volume variation is equal to a 3-unit increment. Needless to say, a closer titration is obtained under the latter condition.

The range of serum dilutions.—In a series of dilutions ranging from 1 to 50 percent with a uniform increment of 1 percent, it is obvious that a greater mathematical error is inherent in the dilute portion of the series. For practical purposes, in order to minimize this error, any test which gives an equivalent end point in concentrations less than 10 percent is disregarded. The test is then repeated, making an initial dilution of the serum so that the end point will occur in the zone of dilutions above 10 percent.

The SSS dilutions.—If a good preparation of SSS is used, a 1:50,000 to 1:100,000 (20 to 10 micrograms per cc) will give an equivalent end point between 10 and 20 percent with a standard serum containing 300 to 500 units per cc. Such a dilution of the polysaccharide is most satisfactory for routine standardization purposes.

TECHNIQUE

Exact quantitative technique should be employed in the preparation of the test dilutions of both the SSS and the antibody. The following details are given in order to clarify the procedure.

1. *Preparation of SSS dilutions.*—Make the stock solution in a volumetric flask, from an accurately weighed sample of the dried material, dissolving it first in a small volume of saline with the addi-

tion of enough normal NaOH to maintain a neutral reaction and facilitate solution. Then add saline to complete the volume for a 1:500 dilution. Using a volumetric flask and a quantitative delivery pipette, prepare from this the dilution required for the test in such a quantity that not less than 1 cc of the 1:500 stock solution need be measured.

2. *Preparation of serum dilutions.*—Measure the physiological saline for the serum dilutions with a burette when more than 2 cc is needed, and with a 2-cc accurately calibrated serological pipette graduated in tenths, when less than 2 cc is needed. In measuring the serum for the initial dilution, draw it up to the line in a quantitative pipette calibrated to contain exactly the amount required. With a piece of cotton or gauze, remove the excess serum clinging to the outside of the pipette, and rinse the inside five times in the dilution being made. Use a 2-cc serological pipette graduated in tenths in making subsequent dilutions from this initial one. Make at least 1-cc volumes preferably 2 cc or more, of each dilution.

3. *Mixing the two components (first step).* —After the serum dilutions have been properly prepared, use quantitative pipettes to deliver 1-cc volumes into small agglutination tubes 4 inches by ⅜ inch, arranged in suitable racks. Then, with a quantitative delivery pipette, add 1 cc of the chosen dilution of SSS to each. Shake each tube to insure thorough mixing, incubate for 2 hours in a 37° C. water bath, in which the water extends half-way up to the level of the mixtures in the tubes. Store in the cold (4° C.) over night.

4. *Adding the indicating serum (second step).*—The next morning, without stirring up the precipitates, separate them from the supernatant fluids, by centrifugalization, preferably in the cold or at room temperature for 3 or 4 minutes. Drain the supernatant fluids into clean, clear agglutination tubes and to them add the indicating serum in the amount found to be optimal (see under indicating serum). Shake each tube thoroughly. Incubate at 37° C. for 2 hours Do not disturb the precipitates when handling the racks after incubation, but allow them to settle for 2 hours at room temperature before recording the end point.

5. *Reading the end point.*—For consistent and reliable results, consider the end point as that dilution next in series to the one containing a well-formed disk precipitate. With some sera and some SSS preparations, the end point is extremely definite, i. e., of 2 adjacent tubes in a series, one contains a disk precipitate, the other contains not even a trace of flocculation. On the other hand, there are cases when the mixtures next in series to the last disk precipitate are not clear, but contain a fine sediment which becomes a swirl when the tube is shaken. This irregularity may be attributable to a multiplicity of antigens and (or) antibodies. Consequently, disregard these fine, dwindling

precipitates and record the tube following the last disk precipitate in the series as the equivalent end point.

6. *Calculating the unit value.*—The greater the unit value of any antibody preparation, the smaller is the volume required to combine equivalently with a given dilution of SSS. Hence an inverse proportion expresses the relationship between the antibody content of an immune serum and the percentage dilution that represents its equivalent end point. The unit value of unknown serum is found from the proportion $A:A'=B':B$, or $A=\frac{A'B'}{B}$, in which A equals the unit value of the unknown serum, A' the unit value of the standard serum, B the equivalent end point of the unknown, and B' the equivalent end point of the standard serum.

USUAL STANDARDIZATION PROCEDURE

The first step in standardizing an unknown serum is to find out its approximate value, whether it is of high or low potency. For this purpose either the precipitin or agglutinin titer affords a basis of estimation. A more useful measure, perhaps, is a combining test in which the serum dilutions are widely spaced in order to cover a broad range of concentrations. In this way, a rough estimation of unit value is made, from which a confirmatory test, using a smaller dilution variation, hence a smaller unit increment, is planned.

In the first column of the following table, possible end points of the preliminary test are given. In the next three columns the initial dilution, the dilution range, and the increment for the confirmatory test are shown for each case. It will be noted that the initial dilution is designed to insure a dilution range of from 20 to 10 percent whenever possible, and at the same time, a small unit value for the 1 percent increment.

Reference table

If the endpoint of the preliminary test is (percent)—	Then for the confirmatory test make— (1) an initial serum dilution	(2) from which prepare a dilution series from—	(3) with an increment of—
		Percent	*Percent*
40	None	50 to 30	2
35	do	44 to 24	2
30	do	35 to 25	1
25	do	30 to 20	1
20	do	25 to 15	1
15	do	20 to 10	1
10	1:2	25 to 15	1
5	1:3	20 to 10	1
Less than 5	1:5 1:10	20 to 10	1

The figures in this table are valid when 10 to 20 percent end point represents a standard serum of 600 to 800 units per cc

The following example is illustrative of the complete standardization procedure, performed in accordance with the principles outlined in this report.

Preliminary test.—Using the described quantitative technique, dilutions of an unknown bivalent antipneumococcic horse serum X 60 were prepared with a 5 percent increment over a range from 40 to 5 percent by volume. A 50 percent dilution was made by mixing equal volumes of serum and saline. The test dilutions were prepared in the following manner:

40 percent dilution = 4.0 cc of 50 percent dilution + 1.0 cc saline.
35 percent dilution = 3.5 cc of 50 percent dilution + 1.5 cc saline.
30 percent dilution = 3.0 cc of 50 percent dilution + 2.0 cc saline.
25 percent dilution = 2.5 cc of 50 percent dilution + 2.5 cc saline.
20 percent dilution = 2.0 cc of 50 percent dilution + 3.0 cc saline.
15 percent dilution = 1.5 cc of 50 percent dilution + 3.5 cc saline.
10 percent dilution = 1.0 cc of 50 percent dilution + 4.0 cc saline.
5 percent dilution = 0.5 cc of 50 percent dilution + 4.5 cc saline.

One cc of a 1:100,000 dilution of SSS was added to 1 cc of serum dilution and the test was completed in the prescribed manner. The protocol of this preliminary test is given below:

SSS 1:100,000	Percent dilutions of unknown serum					
	30	25	20	15	10	5
Type I	−	−	−*	+	+	+
Type II	−	−	−	−*	+	+

+ indicates disk precipitate.
* indicates preliminary end point.

Confirmatory test.—For this test the range and increment of the dilution series for serum X 60 were found in the reference table opposite the values for the preliminary end points. These were 20 and 15 percent for type I and type II antibody, respectively. Consequently, a dilution series which included concentrations from 25 to 10 percent of the serum by volume was prepared, with a 1 percent volume increment. From a 30 percent dilution (3 cc of serum + 7 cc of saline), the dilutions from 25 to 20 percent were made as follows:

25 percent dilution = 2.5 cc of 30 percent dilution + 0.5 cc saline.
24 percent dilution = 2.4 cc of 30 percent dilution + 0.6 cc saline.
23 percent dilution = 2.3 cc of 30 percent dilution + 0.7 cc saline.
22 percent dilution = 2.2 cc of 30 percent dilution + 0.8 cc saline.
21 percent dilution = 2.1 cc of 30 percent dilution + 0.9 cc saline.

80100°—35——2

Likewise, from a 20 percent dilution (2 cc serum+8 cc saline) the series from 19 to 10 percent was made:

19 percent dilution=1.9 cc of 20 percent dilution+0.1 cc saline.
18 percent dilution=1.8 cc of 20 percent dilution+0.2 cc saline.
17 percent dilution=1.7 cc of 20 percent dilution+0.3 cc saline.
16 percent dilution=1.6 cc of 20 percent dilution+0.4 cc saline.
15 percent dilution=1.5 cc of 20 percent dilution+0.5 cc saline.
14 percent dilution=1.4 cc of 20 percent dilution+0.6 cc saline.
13 percent dilution=1.3 cc of 20 percent dilution+0.7 cc saline.
12 percent dilution=1.2 cc of 20 percent dilution+0.8 cc saline.
11 percent dilution=1.1 cc of 20 percent dilution+0.9 cc saline.
10 percent dilution=1.0 cc of 20 percent dilution+1.0 cc saline.

At the same time, the standard serum containing 500 units of each type per cubic centimeter was diluted in a similar way over a range from 20 to 10 percent of its concentration. The results of the completed test are recorded in the following table:

Serum	Type of SSS	Percent dilutions of serum										
		20	19	18	17	16	15	14	13	12	11	10
Standard	I	−	−	−	−	−*	+	+	+	+	+	+
X 60	I	−	−	−*	+	+	+	+	+	+	+	+
Standard	II	−	−	−	−	−	−	−*	+	+	+	+
X 60	II	−	−	−	−	−	−	−	−*	+	+	+

1:100,000 dilution of SSS used.
+indicates disk precipitate.
* indicates equivalent end point.

The experimental values for the equivalent end point of both the unknown and the standard serum, and the unit value of the latter, were substituted in the formula, $A=\frac{A'B'}{B}$. Thus for serum X60, the unit value is equivalent to: $A=\frac{500\times16}{18}$, or 444 units of type I antibody, and $A=\frac{500\times14}{13}$, or 538 units of type II antibody.

DISCUSSION

It is evident that the *in vitro* test just described applied to antipneumococcus horse sera and concentrates measures only the anti-SSS antibody which, of course, produces the usual immunological reactions. Antibodies to other antigens of the pneumococcus are known to be present in such sera, but so far they have not been shown to have any therapeutic value. The anti-C, or somatic antibody of Tillett, Goebel, and Avery (*1*), is present in what should be significant amounts. But it appears, especially when the study of Tillett and Francis (*2*) on pneumonia in man is taken into consideration, that this antibody has no curative effect. In other words, it is an antibody

developed in response to an antigen of the pneumococcus which bears no relationship to the pathogenesis of this organism to man.

On the other hand, according to the observations of Francis (*3*), Finland and Sutliff (*4*), Francis and Tillett (*5*), and Felton, Sutliff, and Steele (*6*), the proof that the SSS of Heidelberger and Avery is antigenic in that it stimulates antibody formation in man, and our unpublished results, as well, showing that the incidence of pneumonia is significantly lowered by its use as a prophylactic, emphasizes the importance of the anti-SSS antibody as a curative agent rather than other antibodies which might be present in antipneumococcus horse serum, but in relatively minute amounts. It is not to be inferred, however, that SSS is the essential or only antigen of the pneumococcus; for it is possible that other antigens may be found which, along with SSS, may stimulate antibodies capable of exerting greater curative action than anti-SSS antibody alone.

The importance of the anti-SSS antibody is further emphasized by the high degree of correlation between the results obtained by the mouse-protection test, using 40 mice to a dilution, and those of the combining equivalent test. The Pearson correlation coefficient of the results of this test compared with those of the mouse method in 40 sera and concentrates is, for type I, $r=0.90$, and for type II, $r=0.89$. This small correlation discrepancy may be due to experimental errors or may indicate the presence of an antibody other than the anti-SSS antibody which, for white mice, is curative. The facts of the case are not known. At any rate, with the antipneumococcus horse sera which are produced today, the curative value is for the most part measured by the anti-SSS antibody content.

In our opinion, when the material is to be used on human beings, no *in vitro* test can entirely supplant an *in vivo* test. For the last 3 years the combining equivalent procedure has been used to estimate the anti-SSS antibody content of sera and concentrates, and the results so obtained were checked by the usual mouse methods. This was done for two reasons: First, as an animal safety test, and, second, as a control on the *in vitro* method. Briefly, the mouse-protective titer was found to be equal to or higher than the equivalent combining titer in all tests run.

In consequence, the following procedure is being used and advocated for the standardization of antipneumococcus horse sera and concentrates for therapeutic purposes: First, the anti-SSS antibody content is estimated by the equivalent combining technique. This is then checked by the mouse method. For this purpose a single dilution each of the control and the unknown serum is tested, using only 10 mice for a dilution. The culture employed is of such virulence that 0.5 cc of a 1:200 dilution (or greater) of a 6- to 8-hour broth culture gives a satisfactory end point with the control serum. In case of the United

States Government serum P 11, the type I culture dose is used such that 3 to 7 mice survive when injected simultaneously with the culture and 0.5 cc of 1:300 dilution of this serum; the type II culture is used so that 3 to 7 mice survive with 0.5 cc of 1:150 serum dilution. Having established the satisfactory dose of culture for the end point of the control serum, the unknown can be checked. For example, if an unknown serum is estimated to contain 1,100 units per cc by the equivalent combining test, then 0.5 cc of a 1:1,100 dilution is injected in 10 mice along with the appropriate dose of culture. The control serum is injected as indicated above.

In the interpretation of the results of the mouse test after a 96-hour period there are three possibilities: First, if 3 to 7 mice survive in the case of the standard serum, and 7 to 3 in the unknown, the test is valid. Second, if all mice die with the control and 3 to 7 survive with the unknown, the test is also valid. Third, if less than three die with the control, regardless of what happens in case of the unknown serum, the check is not satisfactory. Accordingly, in the event of the first or second possibility, the unit value of the example given would be 1,100 units per cc. The results denoted in the third possibility indicate the need of a repetition of the test.

It should be understood that this method of checking with a small number of mice does not directly estimate mouse-protective units. It serves as an animal safety test and, in addition, proves that the anti-SSS antibody is active. In reality, the protective characteristic of antipneumococcus horse serum is a function of the anti-SSS antibody. Consequently, as long as this antibody is not altered, the combining equivalent test measures the protective units of both sera and concentrates. As a matter of fact, given a single sample of polysaccharide, the unit of antibody may be established as that amount which combines with a specified amount of SSS. For example, in one sample of type I SSS used in this study, 10 micrograms were equivalent to 54 protective units; and with type II, 10 micrograms were equivalent to 22 protective units. It would thus seem possible to estimate directly the protective unit value of an unknown serum by a standard SSS preparation rather than by a standard or control serum. The advantage of such a procedure is obvious, inasmuch as the polysaccharide is a more stable substance than the serum antibody.

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A REPORT ON THE FUMIGATION OF A LOADED VESSEL

The following account of an interesting experience with the fumigation of a loaded vessel has been reported by Senior Surgeon C. L. Williams.

"The American S. S. *Delvalle* arrived in New Orleans on September 4 from Buenos Aires and other east-coast South American ports, loaded to the hatch coamings with birdseed, corn meal, corn, corned beef, tallow, and coffee, most of the cargo in packages, except the corn in bulk loaded in no. 5 hold. Inspection showed the presence of rats in no. 2 hold, the shelter deck over no. 3 hold, and in no. 5 hold, an estimate of 8 rats being made. In consequence, the ship was fumigated before discharge of cargo.

"At the time of fumigation there appeared to be no unusual features of construction or fumigation. On account of the full load, the gas in all holds was introduced at least in part through the ventilators, particular attention being paid to introducing proportionate dosages to the lower levels as well as to the 'tween decks. It was thought that in no. 3 hold, as well as in the others, all levels had been properly gassed. All holds were fumigated with liquid HCN, using the air-jet sprayer.[1]

"On the following day, while the ship was being unloaded, it became apparent to the inspector sent to determine the efficacy of the fumigation that there were still live rats in no. 3 'tween deck. He made a careful investigation and discovered that, on account of the peculiar construction of no. 3 hold, the 'tween deck was not reached by any ventilator; and since at the time of fumigation the shelter deck was full of cargo, completely covering up the 'tween-deck hatch, it was quite apparent that practically no gas had ever reached this location. The inspector promptly set traps in the 'tween deck, and next morning two more rats were recovered. No additional rats were trapped there later, nor were any rats trapped in any other part of the ship, although about 20 rat traps were set therein. Besides these 5 rats trapped, 8 rats were found dead—1 in the shelter deck of no. 3 hold, 1 in the forepeak, and 6 in no. 2 hold. The latter group consisted of an adult and 5 infant rats in a casing near the bottom of the ship.

"This instance is reported as an example both of effectiveness of loaded fumigation when carefully carried out and of the possibilities of missing certain compartments when the construction of the ship is not thoroughly understood or when the compartments are completely covered by cargo without access through ventilators."

[1] For a description of this sprayer see the Pub. Health Rep., vol. 46, no. 30, July 24, 1931, pp. 1755–1761.—Ed.

DEATHS DURING WEEK ENDED NOV. 16, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 16, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,727	7,831
Deaths per 1,000 population, annual basis	10.8	10.9
Deaths under 1 year of age	495	571
Deaths under 1 year of age per 1,000 estimated live births	45	53
Deaths per 1,000 population, annual basis, first 46 weeks of year	11.3	11.3
Data from industrial insurance companies:		
Policies in force	67,721,419	67,041,531
Number of death claims	10,254	11,357
Death claims per 1,000 policies in force, annual rate	7.9	8.8
Death claims per 1,000 policies, first 46 weeks of year, annual rate	9.5	9.8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Nov. 23, 1935, and Nov. 24, 1934

Cases of certain communicable diseases reported by telgraph by State health officers for weeks ended Nov. 23, 1935, and Nov. 24, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934
New England States:								
Maine	-------	1	-------	-------	121	13	0	0
New Hampshire	1	-------	-------	-------	-------	5	0	0
Vermont	-------	4	-------	-------	41	2	0	0
Massachusetts	7	17	-------	-------	62	83	2	0
Rhode Island	-------	2	-------	-------	32	-------	0	0
Connecticut	1	1	2	1	55	222	1	0
Middle Atlantic States:								
New York	32	45	[1] 4	[1] 41	481	1,078	8	5
New Jersey	25	32	8	26	23	49	0	1
Pennsylvania	60	56	-------	-------	133	632	8	2
East North Central States:								
Ohio	90	97	11	6	115	101	1	1
Indiana	89	53	15	43	7	149	0	1
Illinois	87	70	14	16	22	333	4	5
Michigan	23	12	2	3	37	47	6	1
Wisconsin	5	9	40	3	76	212	0	0
West North Central States:								
Minnesota	7	4	1	1	41	220	1	0
Iowa	28	4	-------	-------	7	277	1	0
Missouri	68	60	86	41	17	71	3	4
North Dakota	2	10	13	-------	8	29	0	0
South Dakota	2	4	1	-------	9	24	0	0
Nebraska	7	14	-------	-------	3	7	2	0
Kansas	16	15	12	-------	11	83	0	1
South Atlantic States:								
Delaware	2	-------	1	1	64	-------	0	0
Maryland [3]	16	14	9	8	6	35	3	0
District of Columbia	23	14	2	-------	2	1	2	0
Virginia [3]	68	104	-------	-------	23	140	6	2
West Virginia	48	60	25	33	18	161	0	3
North Carolina	78	74	10	10	37	107	0	0
South Carolina	8	10	163	267	5	3	0	0
Georgia [4]	27	52	7	-------	2	-------	1	0
Florida	12	25	2	-------	1	10	0	0
East South Central States:								
Kentucky	61	79	17	32	5	332	2	0
Tennessee	60	62	38	68	7	22	3	0
Alabama [4]	37	37	15	51	12	57	1	1
Mississippi [3]	23	26	-------	-------	-------	-------	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 23, 1935, and Nov. 24, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934
West South Central States:								
Arkansas	28	16	44	19			0	0
Louisiana	21	39	4	5	8	8	4	0
Oklahoma [5]	23	16	51	27	2	6	5	0
Texas [1]	153	93	147	81	3	6	0	0
Mountain States:								
Montana	4	11	11	3	19	53	0	0
Idaho		1	2	3	14	11	0	0
Wyoming		3			3	4	0	0
Colorado	10	9			5	150	1	0
New Mexico	5	5	4	4		45	3	0
Arizona	5	5	36	15	1	2	1	0
Utah [2]					1	12	0	0
Pacific States:								
Washington		12			87	31	1	0
Oregon	2		23	42	264	15	0	2
California	62	42	44	32	204	148	4	0
Total	1,329	1,316	864	882	2,094	4,996	74	30
First 47 weeks of year	33,031	35,331	111,757	57,392	709,423	692,526	5,075	2,059

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934
New England States:								
Maine	0	0	24	26	0	0	2	5
New Hampshire	0	0	6	6	0	0	1	0
Vermont	0	0	5	14	0	0	1	1
Massachusetts	10	0	192	182	0	0	1	1
Rhode Island	2	0	9	17	0	0	0	0
Connecticut	6	0	54	45	0	0	1	2
Middle Atlantic States:								
New York	28	1	395	390	0	0	13	16
New Jersey	4	0	79	131	0	0	11	9
Pennsylvania	13	0	397	408	0	0	15	14
East North Central States:								
Ohio	1	0	252	447	0	1	4	5
Indiana	0	1	189	179	2	1	3	1
Illinois	7	3	485	590	2	1	12	24
Michigan	8	4	222	286	0	0	4	9
Wisconsin	2	0	352	433	6	15	8	1
West North Central States:								4
Minnesota	4	2	257	91	0	8	3	0
Iowa	2	1	116	63	2	0	3	5
Missouri	1	0	150	112	2	2	3	20
North Dakota	0	0	31	43	6	1	0	3
South Dakota	0	0	73	21	8	23	1	0
Nebraska	0	0	85	34	48	0	0	0
Kansas	0	1	127	53	11	1	6	4
South Atlantic States:								
Delaware	0	0	10	11	0	0	0	3
Maryland [3]	5	2	71	115	0	0	15	0
District of Columbia	1	0	2	24	0	0	0	0
Virginia [3]	1	1	51	162	0	0	13	14
West Virginia	0	2	119	177	2	1	5	11
North Carolina	7	0	76	123	0	0	4	2
South Carolina	1	0	2	6	0	0	2	3
Georgia [4]	0	0	28	23	0	0	2	2
Florida	0	0	7	8	0	0	2	3
East South Central States:								
Kentucky	4	1	75	84	0	0	7	24
Tennessee	6	1	74	103	5	0	4	15
Alabama [4]	0	2	12	43	0	1	2	13
Mississippi [3]	0	0	28	29	1	0	8	4

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 23, 1935, and Nov. 24, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934	Week ended Nov. 23, 1935	Week ended Nov. 24, 1934
West South Central States:								
Arkansas	0	0	13	13	2	0	2	18
Louisiana	0	1	15	21	0	1	9	12
Oklahoma [5]	1	0	20	22	0	0	11	33
Texas [4]	0	3	66	64	0	0	31	35
Mountain States:								
Montana	1	0	116	18	40	0	0	1
Idaho	0	0	34	13	0	0	2	1
Wyoming	0	0	76	12	0	3	0	0
Colorado	0	0	85	208	1	2	1	3
New Mexico	1	0	25	25	0	1	11	29
Arizona	1	1	32	36	0	0	1	9
Utah [2]	0	0	105	39	0	0	0	0
Pacific States:								
Washington	0	7	80	60	37	24	0	3
Oregon	6	2	64	59	0	0	4	1
California	14	23	245	198	7	2	7	11
Total	137	59	5,026	5,276	182	88	230	369
First 47 weeks of year	10,406	7,021	221,889	189,104	6,495	4,500	16,501	19,672

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended Nov. 23, 1935, Virginia, 1 case.
[4] Typhus fever, week ended Nov. 23, 1935, 18 cases, as follows: Georgia, 4, Alabama, 8; Texas, 6.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October 1935										
Alabama	2	177	76	858	16	28	3	60	0	24
Idaho			4		15		0	175	1	15
Illinois	19	294	61	34	61	1	58	1,692	7	92
Kansas	4	69	3	4	12		8	341	10	28
Louisiana	4	110	31	526	26	18	10	63	1	72
Maryland	19	58	21	18	34	1	15	299	0	76
Massachusetts	13	35		4	179		236	552	0	13
New York	32	113		4	729		285	1,218	0	63
Oklahoma [1]	8	71	102	272	6	11		68	2	53
Oregon		4	72	15	459		9	165	0	8
South Dakota	5	26	4	1	31		6	147	36	5
Texas	4	440	409	3,233	27	49	9	200	5	117
Virginia	9	280	255	124	29	6	19	251	0	57
West Virginia	4	240	55		24		1	523	1	48

[1] Exclusive of Oklahoma City and Tulsa.

Summary of monthly reports from States—Continued

October 1935

	Cases
Anthrax:	
Illinois	1
New York	1
Chicken pox:	
Alabama	50
Idaho	31
Illinois	773
Kansas	235
Louisiana	2
Maryland	115
Massachusetts	351
New York	976
Oklahoma [1]	11
Oregon	56
South Dakota	65
Texas	55
Virginia	100
West Virginia	90
Dengue:	
Alabama	1
Texas	11
Diarrhea:	
Maryland	39
Dysentery:	
Illinois (amoebic)	13
Illinois (bacillary)	28
Kansas (amoebic)	1
Kansas (bacillary)	5
Louisiana (amoebic)	7
Louisiana (bacillary)	3
Maryland	34
Massachusetts (amoebic)	1
Massachusetts (bacillary)	2
New York (amoebic)	3
New York (bacillary)	150
Oklahoma [1]	11
Oregon (amoebic)	1
Texas (amoebic)	1
Texas (bacillary)	31
Virginia (diarrhea included)	127
West Virginia	7
Epidemic encephalitis:	
Alabama	1
Illinois	12
Kansas	1
Louisiana	1
Maryland	1
Massachusetts	13
New York	12
Texas	1
Virginia	1
West Virginia	1
German measles:	
Alabama	1
Illinois	31
Kansas	13
Maryland	25
Massachusetts	39
New York	123
Hookworm disease:	
Illinois	1
Louisiana	13
Oklahoma [1]	3
Impetigo contagiosa:	
Illinois	27
Kansas	4
Maryland	60
Oklahoma [1]	10
Oregon	128
Lead poisoning:	
Illinois	3
Massachusetts	1
Leprosy:	
Louisiana	1
Milk sickness:	
Illinois	1
Mumps:	
Alabama	12
Idaho	19
Illinois	206
Kansas	116
Louisiana	1
Maryland	54
Massachusetts	333
Oklahoma [1]	14
Oregon	65
South Dakota	64
Texas	205
Virginia	54
West Virginia	5
Ophthalmia neonatorum:	
Illinois	4
New York	5
Oregon	1
South Dakota	1
Virginia	2
Paratyphoid fever:	
Illinois	2
Maryland	1
New York	6
Oregon	1
Texas	1
Virginia	1
Puerperal septicemia:	
Illinois	2
Rabies in animals:	
Alabama	75
Illinois	15
Kansas	9
Louisiana	24
Maryland	2
Massachusetts	9
New York [2]	3
Oregon	6
Texas	26
Rabies in man:	
Alabama	1
West Virginia	1
Scabies:	
Idaho	1
Maryland	2
Oregon	47
Septic sore throat:	
Illinois	6
Kansas	7
Louisiana	1
Maryland	14
Massachusetts	8
New York	46
Oklahoma [1]	25
Oregon	11
Virginia	8
Tetanus:	
Alabama	7
Illinois	5
Louisiana	6
Maryland	2
Massachusetts	2
New York	4
Virginia	2
Trachoma:	
Illinois	53
Massachusetts	5
Oklahoma [1]	18
South Dakota	2
Trichinosis:	
Illinois	5
Massachusetts	3
New York	6
Tularaemia:	
Illinois	1
Kansas	1
Louisiana	2
Virginia	6
Typhus fever:	
Alabama	25
Louisiana	1
New York	6
Texas	28
Undulant fever:	
Alabama	6
Illinois	11
Kansas	11
Louisiana	4
Maryland	5
Massachusetts	8
New York	15
Oklahoma [1]	1
South Dakota	1
Virginia	2
Vincent's infection:	
Illinois	19
Kansas	2
Maryland	17
New York [2]	79
Oklahoma [1]	5
Oregon	20
Whooping cough:	
Alabama	41
Idaho	5
Illinois	656
Kansas	96
Louisiana	54
Maryland	88
Massachusetts	286
New York	1,217
Oklahoma [1]	24
Oregon	6
South Dakota	24
Texas	80
Virginia	25
West Virginia	33

[1] Exclusive of Oklahoma City and Tulsa.

[2] Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended Nov. 16, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	-----	0	0	1	0	0	0	0	14	24
New Hampshire:											
Concord	0	-----	0	0	0	2	0	0	0	0	12
Manchester	0	-----	0	0	2	1	0	1	0	0	18
Nashua	0	-----	-----	0	-----	0	0	-	0	0	-----
Vermont:											
Barre	1	-----	0	0	0	0	0	0	0	0	3
Burlington	0	-----	0	0	0	0	0	0	4	0	3
Massachusetts:											
Boston	2	-----	1	14	18	48	0	7	0	4	195
Fall River	1	-----	0	0	0	1	0	1	0	0	16
Springfield	0	-----	0	0	1	3	0	1	0	7	47
Worcester	0	-----	0	1	3	21	0	2	0	4	51
Rhode Island:											
Pawtucket	0	-----	0	0	0	0	0	0	0	0	12
Providence	1	-----	0	0	3	5	0	0	0	3	60
Connecticut:											
Bridgeport	0	-----	0	0	0	2	0	0	0	0	21
Hartford	0	-----	0	1	1	6	0	1	0	8	-----
New Haven	0	-----	1	0	2	0	0	2	0	6	54
New York:											
Buffalo	1	-----	0	12	15	30	0	5	0	10	125
New York	21	7	4	85	87	69	0	67	3	99	1,321
Rochester	0	-----	0	2	2	3	0	2	0	4	52
Syracuse	0	-----	0	0	1	3	0	0	0	18	43
New Jersey:											
Camden	1	1	0	1	3	2	0	0	0	0	19
Newark	0	2	0	1	2	18	0	10	0	40	80
Trenton	0	-----	0	0	2	4	0	1	2	4	28
Pennsylvania:											
Philadelphia	10	1	1	27	18	88	0	22	2	68	425
Pittsburgh	4	7	3	4	18	67	0	3	0	20	165
Reading	0	-----	0	3	0	3	0	0	0	0	23
Scranton	0	-----	-----	2	-----	7	0	-----	0	0	-----
Ohio:											
Cincinnati	7	-----	0	0	3	15	0	11	1	1	125
Cleveland	7	21	1	0	11	22	0	14	0	53	176
Columbus	4	1	1	0	2	11	0	4	0	1	67
Toledo	2	-----	0	3	2	11	0	4	0	10	70
Indiana:											
Anderson	0	-----	0	0	0	1	0	1	0	3	5
Fort Wayne	15	-----	0	0	2	13	1	0	0	0	32
Indianapolis	10	-----	1	2	11	15	0	2	0	12	107
Muncie	0	-----	0	3	2	0	0	0	0	0	5
South Bend	6	-----	0	1	3	1	0	0	0	1	16
Terre Haute	2	-----	0	0	0	2	0	0	0	0	16
Illinois:											
Alton	4	-----	0	0	0	7	0	0	0	0	10
Chicago	17	8	7	7	41	159	0	45	2	97	661
Elgin	1	-----	0	0	1	4	0	0	0	0	13
Moline	0	-----	0	0	1	1	0	0	0	0	7
Springfield	0	-----	0	1	1	4	0	0	0	0	18
Michigan:											
Detroit	11	2	1	3	13	48	0	9	1	117	233
Flint	3	-----	0	1	4	11	0	1	0	5	23
Grand Rapids	0	-----	0	1	3	4	0	2	0	2	35
Wisconsin:											
Kenosha	0	-----	0	1	0	8	0	0	0	4	4
Milwaukee	0	-----	0	3	8	31	0	3	0	46	108
Racine	1	-----	0	0	2	23	0	2	0	16	17
Superior	0	-----	0	0	0	3	0	0	0	0	5
Minnesota:											
Duluth	0	-----	0	2	1	1	0	0	0	9	15
Minneapolis	2	-----	0	3	8	67	0	1	1	9	88
St. Paul	1	1	1	2	3	28	0	5	0	0	58

City reports for week ended Nov. 16, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Iowa:											
Cedar Rapids	1		0	0	0	0	0	0	0	1	
Davenport	0			0		4	0		0	1	
Des Moines	1			1		5	0		0	0	37
Sioux City	3			1		8	0		0	0	
Waterloo	5			1		2	0		0	1	
Missouri:											
Kansas City	11		1	1	7	4	0	0	0	0	91
St. Joseph	7		0	1	3	2	0	1	0	0	45
St. Louis	10		1	0	5	26	0	6	1	5	185
North Dakota:											
Fargo	0		0	0	0	3	2	0	0	0	7
Grand Forks	0			0		0	0		0	0	
Minot	0		0	0	0	2	0	0	0	0	4
South Dakota:											
Aberdeen	0			0		0	0		0	0	
Nebraska.											
Omaha	10		1	1	3	56	0	1	0	0	46
Kansas:											
Lawrence	0		0	0	0	0	0	0	0	0	5
Topeka	0		0	0	5	10	0	0	0	3	13
Wichita	0		0	0	1	6	0	0	0	0	23
Delaware:											
Wilmington	0		0	0	3	0	0	1	0	0	22
Maryland:											
Baltimore	6	2	2	1	19	31	0	12	3	20	208
Cumberland	2		0	0	0	2	0	0	0	0	14
Frederick	0		0	0	0	1	0	0	0	0	1
District of Columbia:											
Washington	15	1	1	1	8	8	0	6	1	2	171
Virginia.											
Lynchburg	4		0	1	1	1	0	1	0	6	9
Norfolk	3		0	0	5	0	0	0	0	2	44
Richmond	3		0	0	5	5	0	2	1	0	51
Roanoke	0		0	[illegible]	0	5	0	1	1	0	17
West Virginia:											
Charleston	5		0	0	0	6	0	1	0	0	33
Huntington	2			0		4	0		0	0	
Wheeling	3		0	0	1	5	0	0	0	6	18
North Carolina:											
Gastonia	1		0	0	0	0	0	0	0	0	2
Raleigh											
Wilmington	0		0	0	0	0	0	0	0	0	10
Winston-Salem	1		0	2	2	5	0	0	0	0	15
South Carolina:											
Charleston	0	8	0	0	1	1	0	2	1	0	17
Columbia	0		0	0	0	0	0	0	0	0	4
Florence	0		0	0	1	0	0	0	0	0	9
Greenville	0		0	0	1	0	0	0	0	0	11
Georgia:											
Atlanta	8	7	0	0	5	14	0	5	0	1	75
Brunswick	0		0	0	0	1	0	0	0	3	2
Savannah	4	3	0	1	3	4	0	2	0	1	27
Florida:											
Miami	1	1	0	0	0	1	0	2	1	4	20
Tampa	6	1	0	0	1	2	0	1	0	0	25
Kentucky:											
Ashland	4			0		0	0		0	0	
Covington	3		0	0	1	2	0	0	0	0	14
Lexington	2		0	0	2	2	0	1	4	0	21
Louisville	9	4	1	2	4	10	0	0	2	1	59
Tennessee:											
Knoxville	6		1	0	1	2	0	0	1	0	21
Memphis	5		0	0	1	4	0	1	0	4	88
Nashville	6		0	0	2	4	0	2	0	0	45
Alabama:											
Birmingham	2	2	0	0	5	1	0	4	1	0	57
Mobile	5		0	0	2	1	0	0	0	0	14
Montgomery	1			1		2	0		0	0	
Arkansas:											
Fort Smith	1			0		0	0		0	0	
Little Rock	0		0	0	5	2	0	0	0	0	5
Louisiana:											
Lake Charles	0		0	0	0	1	0	0	0	0	6
New Orleans	13		0	0	11	2	0	9	0	10	141
Shreveport	2		0	0	5	2	0	7	1	0	43

City reports for week ended Nov. 16, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Oklahoma:											
Oklahoma City	0	14	0	0	3	2	0	1	0	2	26
Tulsa											
Texas:											
Dallas	11	1	1	0	4	8	0	1	0	0	61
Fort Worth	14		1	0	3	9	0	3	0	0	40
Galveston	3		0	0	0	0	0	0	0	0	12
Houston	12		0	0	5	1	1	4	1	0	64
San Antonio	7		0	0	4	0	0	3	0	0	55
Montana:											
Billings	0		0	0	1	14	1	0	0	0	7
Great Falls	0		1	0	1	1	0	0	0	6	8
Helena	0		0	0	0	1	0	0	1	0	3
Missoula	0		0	0	1	29	0	0	0	0	8
Idaho:											
Boise	1		0	0	2	4	0	0	0	0	7
Colorado:											
Colorado Springs	0		0	0	0	4	0	0	1	6	14
Denver	4		0	3	11	13	0	3	2	1	73
Pueblo	0		0	0	2	14	0	0	0	1	13
New Mexico:											
Albuquerque	0		0	0	2	3	0	4	0	5	18
Utah:											
Salt Lake City	0		0	3	5	40	0	0	0	1	34
Nevada:											
Reno											
Washington:											
Seattle	0		0	1	8	13	1	7	0	1	117
Spokane	0	1	1	4	1	2	0	2	0	2	36
Tacoma	0			0	3	1	0	0	0	1	34
Oregon:											
Portland	0		1	19	5	12	0	3	0	1	80
Salem	0			0		1	0		0	1	
California:											
Los Angeles	14	22	1	14	16	52	0	14	0	17	314
Sacramento	5		0	0	4	17	0	6	0	0	41
San Francisco	0	5	0	17	4	19	0	7	0	30	168

City reports for week ended Nov. 16, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
New Hampshire:			
Nashua	0	0	1
Vermont:			
Barre	0	0	1
Massachusetts:			
Boston	0	0	8
Worcester	0	0	2
Rhode Island:			
Providence	0	1	1
New York:			
New York	3	1	11
Syracuse	0	1	5
New Jersey:			
Newark	0	0	3
Pennsylvania:			
Philadelphia	1	2	4
Ohio:			
Cincinnati	3	0	0
Indiana:			
Terre Haute	1	1	0
Illinois:			
Chicago	6	1	0
Springfield	1	1	1
Michigan:			
Detroit	4	0	3
Wisconsin:			
Kenosha	0	0	1
Minnesota:			
Minneapolis	1	0	1

State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths	
Missouri:			
Kansas City	1	0	0
St. Louis	0	0	1
Kansas:			
Wichita	0	1	0
Maryland:			
Baltimore	2	0	0
District of Columbia:			
Washington	6	3	0
Georgia:			
Atlanta	1	0	0
Kentucky:			
Louisville	0	0	1
Tennessee:			
Knoxville	1	0	0
Memphis	1	2	0
Alabama:			
Birmingham	0	0	1
Louisiana:			
New Orleans	0	1	1
Colorado:			
Denver	0	0	2
New Mexico:			
Albuquerque	1	0	0
Oregon:			
Portland	2	0	2
California:			
Los Angeles	0	0	3
San Francisco	0	1	1

Epidemic encephalitis.—Cases: Toledo, 1; Chicago, 1; San Francisco, 1.

Pellagra.—Cases: Wilmington, N. C., 1; Winston-Salem, 1; Brunswick, 1; Miami, 1; Louisville, 2; New Orleans, 1; Dallas, 1.

Typhus fever.—Cases. Norfolk, 1; Savannah, 1; Montgomery, 1; Houston, 1; Los Angeles, 2.

FOREIGN AND INSULAR

CZECHOSLOVAKIA

Communicable diseases—September 1935.—During the month of September 1935, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	8	1	Paratyphoid fever	22	
Cerebrospinal meningitis	15	7	Poliomyelitis	48	1
Chicken pox	44		Puerperal fever	45	14
Diphtheria	2,084	106	Scarlet fever	2,310	21
Dysentery	132	16	Trachoma	96	
Influenza	18		Typhoid fever	648	32
Lethargic encephalitis	6	2	Typhus fever	1	
Malaria	311				

INDIA

Vital statistics—Quarter ended March 31, 1935.—Following are vital statistics for British India for the quarter ended March 31, 1935:

	Number	Rates per 1,000 population		Number	Rates per 1,000 population
Live births	2,220,973	32	Deaths from—Continued:		
Deaths	1,453,924	21	Fevers	819,587	12.0
Deaths from:			Plague	16,111	.2
Cholera	36,651	.5	Respiratory diseases	126,776	1.8
Dysentery and diarrhea	54,113	.8	Smallpox	23,665	.3

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for November 29, 1935, pages 1701–1717. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued December 27, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Ecuador.—A report dated November 13, 1935, states that the last case of plague reported in Duran, Ecuador, was on October 15, 1935, and the last plague-infected rat reported was on October 4, 1935. In Nobol, Ecuador, a small settlement located an hour and a half from Guayaquil, by automobile, 1 human case of plague was reported on October 20, 1935.

Egypt—Asyut.—During the week ended November 16, 1935, 1 death from plague was reported at Asyut, Egypt.

India—Punjab.—During the week ended November 9, 1935, 11 cases of plague with 5 deaths were reported at Punjab, India.

Iraq—Baghdad.—During the week ended November 9, 1935, 1 case of plague was reported at Baghdad, Iraq.

Yellow Fever

Colombia—Intendencia of Meta.—During the period September 29 to November 9, 1935, yellow fever was reported in the Intendencia of Meta, Colombia, as follows: Acacias, 2 cases; Restrepo, 2 cases, 2 deaths.

Ivory Coast—Abidjan.—On November 20, 1935, 1 case of yellow fever was reported at Abidjan, Ivory Coast.

Sudan (French)—Koutiala.—On November 20, 1935, 1 death from yellow fever was reported at Koutiala, French Sudan.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878, under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

Requests for and communications regarding the PUBLIC HEALTH REPORTS, reprints, or supplements should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C. Subscribers should remit direct to the Superintendent of Documents, Washington, D. C.

Librarians and others should preserve their copies for binding, as the Public Health Service is unable to supply the general demand for bound copies. Indexes will be supplied upon request.

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PUBLIC HEALTH REPORTS

VOL. 50 DECEMBER 13, 1935 NO. 50

JOB ANALYSIS OF A RURAL HEALTH OFFICER[1]

Brunswick-Greensville Health Administration Studies No. 6

Prepared by J. O. DEAN, *Passed Assistant Surgeon, United States Public Health Service*

INTRODUCTION

The broad objectives underlying the studies of county health departments being conducted by this Office[1] are to determine the efficacy of prevailing practices and, where necessary, to develop more effective measures and administrative procedures for the preservation of health than are now employed. A necessary preliminary step is the collection and analysis of data relative to the daily activities of members of health departments. For this purpose, information has been gathered on each staff member in four health departments, but only that relating to the Brunswick-Greensville health officer is presented in this paper. Partial analyses of the work of the sanitation officer and of the nurses have already appeared in previous issues of the Public Health Reports.[2] [3]

A description of the Brunswick-Greensville area and a general outline of the health department program were given in the first article[4] of this series. However, for purposes of immediate orientation, certain items of information are repeated.

DESCRIPTION OF AREA

Brunswick and Greensville are adjoining counties situated in the piedmont section of south central Virginia and border on North Carolina. They comprise an area of 864 square miles and have a population of approximately 34,000. Fifty-eight percent of the population was colored. The area has four incorporated places with populations of 2,144, 1,629, 365, and 328. The largest two of these, Emporia and Lawrenceville, are the county seats of Greensville and Brunswick Counties, respectively.

[1] From the Office of Studies of Public Health Methods, in cooperation with the Division of Domestic Quarantine.

[2] Dean, J. O., and Mountin, J. W.: Job analysis of a rural sanitation officer. Pub. Health Rep., vol. 49, no. 51, Dec. 21, 1934.

[3] McIver, Pearl: Public health nursing in a bicounty health department. Pub. Health Rep., vol. 50, no. 14, Apr. 5, 1935.

[4] Mountin, J. W.: Effectiveness and economy of county health department practice. Pub. Health Rep., vol. 49, no. 42, Oct. 19, 1934.

The area, which is rural and predominantly agricultural in cha acter, is low in wealth. The per capita income [5] was estimated t be about $147 in Brunswick County and $134 in Greensville Count Taxable resources of the two counties amounted to $15,000,000 an yielded about $233,000 in revenue.

Facilities and community organizations for medical care were nc as well developed as those which may be found in many areas othei wise comparable. Eighteen physicians and five dentists engaged i active practice resided within the area. There were no hospital in either county, and most of the patients seeking hospitalizatio went to Richmond, Va., about 70 miles away. Medical care fo the indigent and other forms of public relief were supervised for th most part by a county superintendent of the poor. Some medica service was provided by small volunteer welfare groups. In eacl county, a luncheon club financed an orthopedic clinic operated b the health department, and a tuberculosis association provided small amount of medical and material relief for families in whicl tuberculosis was known to exist.

In a measure the public health problems of the two counties ar indicated by the incidence of infectious diseases. The reportec number of cases and deaths from a few selected causes for two 5-yea periods, 1921–25 and 1926–30, are presented in table 1.

TABLE 1.—*Reported cases and deaths from selected causes in Brunswick and Greens ville Counties during years 1921–25 and 1926–30*

Disease	1921–25		1926–30	
	Cases	Deaths	Cases	Deaths
Typhoid fever	151	21	40	1(
Diphtheria	215	29	85	1:
Smallpox	28	0	5	(
Scarlet fever	76	2	25	(
Diarrhea and dysentery [1]	1,236	104	377	7(
Malaria	1,276	7	233	4
Tuberculosis	158	178	111	17(

[1] Diarrhea and dysentery not reported until July 1923.

Vital statistics of the period 1921–30 show that the combined mortality rates [6] for white and colored population were as follows: Gross mortality, 11.2; infant mortality, 71.4; tuberculosis, 106.0; typhoid fever, 11.0; diarrhea and enteritis among children under 2 years of age, 41.0; pellagra, 11.6; diphtheria, 12.5; measles, 7.2; and whooping cough, 16.7. Mortality rates for the Negro were consistently higher than for the white fraction of the population. The live birth rate was 30.3 per 1,000 population. About 75 percent of the infants were delivered by midwives.

[5] Sales Management, Apr. 1933.

[6] Total birth and total death rates per 1,000 population; stillbirths infant mortality, and maternal mortality rates per 1,000 live births; other death rates per 100,000 population.

The bicounty health department of this area was under the direction of a medical health officer who served both counties, but maintained headquarters in Lawrenceville, Brunswick County. A sanitation officer serving both counties lived in the county seat of Greensville County, where a branch office of the health department was located. One nurse was assigned to each county and a clerk was stationed at the main office in Lawrenceville. All personnel were employed full time except the clerk.

METHOD OF STUDY

Prior to the study, few records were kept by the health officer. While these records were considered by him as sufficient for local administrative use, it was readily conceded that for purposes of the study it would be necessary to develop a record system especially designed for analysis. After some experimentation, a record system was developed which called for the following information concerning each person served by the health officer in a professional capacity:

1. Identification of the individual in relation to family head and by age, sex and color, and location of home.
2. Date and place of service, such as home, health department office, school, or other place.
3. Source of information: Who instituted the visit? Was the visit made in response to a request from the patient, school teacher, physician, or neighbor, or was it made solely upon the initiative of the health officer?
4. Purpose and result of the visit: Why was the individual seen and what service was rendered?
5. Amount of time involved.

Much of the health officer's work involved activities other than personal service, such as correspondence, working on records and reports, planning the program, supervising clinics, conferring with officials or staff members, and other activities essentially administrative in character. All work, irrespective of its character, was recorded during a period of 10 months. The same general types of information as described for professional visits were also recorded for administrative and miscellaneous activities.

EXTENT AND DISTRIBUTION OF INDIVIDUAL AND GROUP SERVICES RENDERED BY THE HEALTH OFFICER

NUMBER AND COLOR OF INDIVIDUALS SERVED

During the period of the study, records were obtained showing some type of service to 3,992 individuals, approximately 12 percent of the entire population. These individuals represented 2,496 families, or about 37 percent of all families within the area. A larger percentage of the colored population was served than of the white group. The number and percentage of persons seen in each group are listed in table 2.

Table 2.—*Number and percentage of population served by health officer in a period of 10 months according to color*

	Color		Total
	White	Colored	
Population of health district	14, 253	19, 621	33, 874
Number served by health officer	1, 431	2, 559	[1] 3, 992
Percent served by health officer	10 0	13. 0	11 8

[1] Includes 2 persons of unknown color.

PLACE OF SERVICE

The principal activity of the health officer from the standpoint of numbers served was diphtheria control. Most of this was Schick testing and was done in the schools. Approximately 90 percent of those the health officer served were seen in the school, about 7 percent in the health department offices, 4 percent in the homes, and 1 percent in other places.

A great majority of the individuals were recorded as receiving but one visit; therefore very few of them were seen except at the place of first contact. Only 55 individuals were seen at two or more places. The number and percentage of persons seen in school, office, home, and other places are given in table 3.

It is of interest to note that while 64 percent of all those served by the health officer were colored, of those seen in either home or office only 33 percent were colored.

Table 3.—*Number and percentage of persons served by health officer in school, health department offices, home, and other places*

	Number	Percentage of total number of persons served by health officer
Total number of persons seen [1]	3, 992	100. 0
Seen in school	3, 583	89. 8
Seen in health department offices	268	6. 7
Seen in home	151	3. 8
Seen in other places	46	1. 2

[1] 54 persons seen at 2 places; 1 person seen at 3 places

RESIDENCE OF INDIVIDUALS SERVED

During the study period all the public schools were visited in connection with the diphtheria-prevention activities of the health officer. Since the great majority of individuals seen by the health officer were served in the schools, contacts were made in the several districts of the area, as may be observed by referring to figure 1 and table 4. A definitely larger percentage, however, of the Brunswick County

inhabitants was served than of Greensville County. In Greensville County, which was farther from the headquarters than most of the outlying sections of Brunswick County, only 43 persons made contact with the health officer in the home or office, while in Brunswick County 370 persons were seen. The Greensville County residents were practically all visited because of communicable disease. It should be pointed out that one reason for the small number of Greensville County residents served in the home or office by the health officer was the fact that visits were made in this county on an appointment

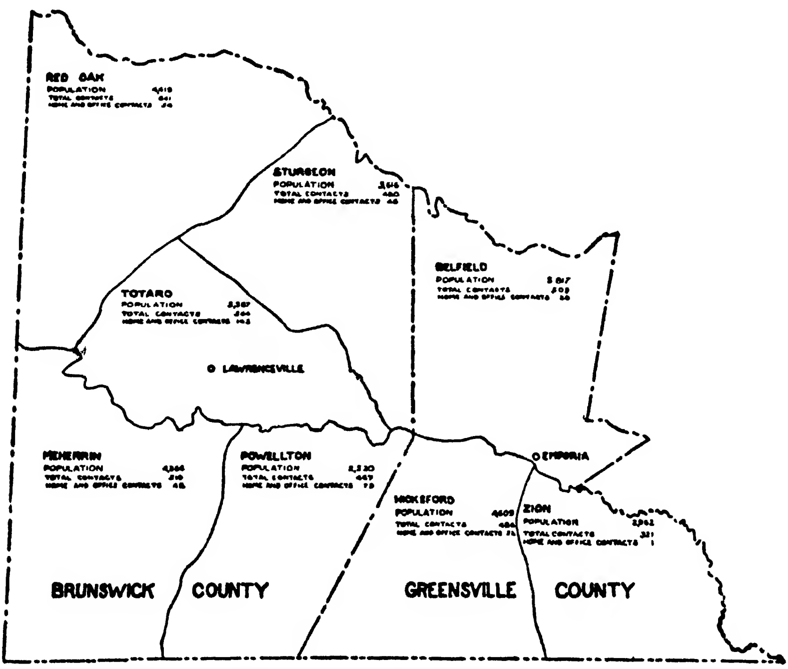

FIGURE 1—Distribution of population and of persons served by the health officer, according to magisterial districts.

basis. The nurse serving Greensville County performed many of the minor duties of a health officer; therefore, visits by the health officer were made to the county chiefly for the purpose of rendering services beyond the resources of the nurse. Table 4 shows the number and percentage of residents served in each magisterial district.

Village or rural residence may have had some influence upon the number served. The residence in relation to village or rural location was unknown for 212 individuals; but excluding these it was found that 8.1 percent of those living in the villages were served, in comparison with 11.8 percent of those in strictly agricultural areas.

TABLE 4.—*Number and percentage of persons from each magisterial district served by the health officer*

Magisterial district	Total population	Total served by health officer		Served by health officer in either home or office	
		Number	Percentage of total population	Number	Percentage of total population
Brunswick County:					
Meherrin district	4,364	519	11.9	48	1.1
Powelltown district	2,520	467	18.5	79	3.1
Red Oak district	4,419	641	14.5	54	1.2
Sturgeon district	3,616	480	13.3	46	1.3
Totaro district	5,567	564	10.1	143	2.6
Total Brunswick County	20,486	2,671	13.0	370	1.8
Greensville County:					
Belfield district	5,817	509	8.8	20	0.3
Hicksford district	4,609	486	10.5	22	0.5
Zion district	2,962	321	10.8	1	0.0
Total Greensville County	13,388	1,316	9.8	43	0.3
Total Brunswick and Greensville Counties	33,874	[1] 3,992	11.8	413	1.2

[1] Total includes 5 individuals of unknown district.

AGE GROUP SERVED

As already pointed out, most of the contacts were made in the schools in connection with diphtheria-prevention activities. While a large part of the publicity attending this work was directed toward reaching children below school age, school children (6–15 years of age) constituted over 81 percent of all contacts. There were no accurate figures available on the population according to age groups at the time of the study. However, on the basis of figures given in the United States census of 1930, population estimates have been made as appear in table 5. The percentage of persons in each age group receiving service from the health officer was as follows: Infants 4.5, preschool 5.8, school 33.9, adult 2.4.

TABLE 5.—*Number and percentage of various age groups served by health officer*

	Infant	Preschool	School	Adult	Total
Total population	806	4,402	9,564	19,102	33,874
Number served by health officer	36	257	3,243	449	[1] 3,992
Percentage served by health officer	4.5	5.8	33.9	2.4	11.8

[1] Total includes 7 individuals of unknown age group.

TYPES OF SERVICE RENDERED AND NUMBER OF CONTACTS MADE WITH EACH INDIVIDUAL

The health officer's services have been classified into four general types:

1. *Immunization.*—Administration of materials for producing immunity against smallpox, diphtheria, typhoid fever, or rabies, or performing Schick test.

2. *Communicable disease control.*—Regulatory measures prescribed by the State health department for cases and contacts of acute communicable disease.

3. *Medical care and relief.*—Investigation of need for medical care or of material relief, and aid to patients in procuring material relief, hospital care, or a physician.

4. *Other services regarding hygiene and sanitation.*

Approximately 90 percent of the 3,992 individuals served by the health officer received some type of immunization service, 5 percent were visited in the interest of communicable disease control, 6 percent were seen for either medical care or material relief, and less than 2 percent were visited for other purposes. There is some duplication of individuals in these percentages, but the amount is small, since only 100 individuals sought more than one type of service. The number of times a person was seen and the number of persons receiving each type of service are given in table 6. Thus it will be seen that of those who were recipients of an immunization service (excluding the reading of Schick tests), approximately 72 percent were seen but one time. Of those seen for communicable disease control and medical or material relief, 65 and 63 percent, respectively, had one visit.

TABLE 6.—*Individuals served by health officer according to number of contacts and type of service rendered*

Type of service	Individuals having specified number of contacts with health officer where at least one contact was for the specified service: Number of individuals					Percent of individuals				
	1 contact	2 contacts	3 contacts	4 or more contacts	Total individuals	1 contact	2 contacts	3 contacts	4 or more contacts	Total individuals
Immunization	2,603	715	250	26	3,594	72.4	19.9	7.0	0.7	100
Communicable disease control	121	34	26	6	187	64.7	18.2	13.9	3.2	100
Medical or material relief	160	69	20	5	254	63.0	27.2	7.9	2.0	100
Other	65	0	2	1	68	95.6	0.0	2.9	1.5	100

SOURCE OF FIRST INFORMATION ABOUT INDIVIDUAL SERVED BY HEALTH OFFICER

The source through which the health officer first learned about the individual to be served or from whom he received a request for service was obtained for all persons except those seen in clinics and in group contacts. This type of information was sought principally for home visits and office calls, where the service was rendered individually rather than collectively in groups, and it was therefore obtained for only 499 individuals. The analyses made on source of call are presented in table 7.

The person served or a member of the family was responsible for requesting the first service for approximately 52 percent of this number. For about 14 percent the health officer reported himself as the source of first information. Actually these represented instances in which either the health officer may have forgotten who was the source of call or in which there was no request for service and he instituted the visit upon his own initiative. Physicians and teachers were next in frequency, each serving as the source of call for about 10 percent of the number on whom this information was collected. Visits to other members of the family provided the first information which led to visits for 26 persons, 5 percent of the total number. Neighbors of those served were responsible for 5 percent of the first visits.

TABLE 7.—*Source of information on first visit to 499 persons receiving individual service from the health officer according to type of service and place*

Source of first information	Type of service at first visit								Place of first visit						Total number of persons receiving individual service	
	Immunization		Communicable disease control		Medical or social relief		Other types of service		Home		Office		Other places			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Individual served or member of his family	103	92.8	18	10.1	111	74.5	25	41.0	230	63.5	11	27.5	16	16.5	257	51.5
Visit to another member of family	0		22	12.4	4	2.7	0	---	25	6.9	1	2.5	0		26	5.2
Health officer	4	3.6	38	21.3	7	4.7	19	31.1	29	8.0	4	10.0	35	36.1	68	13.6
Physician	0		45	25.3	5	3.4	3	4.9	47	13.0	4	10.0	2	2.1	53	10.6
Teacher	4	3.6	45	25.3	1	.7	0		3	.8	9	22.5	38	39.2	50	10.0
Neighbor	0	----	10	5.6	12	8.1	4	6.6	19	5.2	3	7.5	4	4.1	26	5.2
Other	0	--	0	-	9	6.0	10	16.4	9	2.5	8	20.0	2	2.1	19	3.8
Total	111	100.0	178	100.0	149	100.0	61	100.0	362	100.0	40	100.0	97	100.0	499	100.0

Table 7 also shows the relationship between source of information leading to first visit, type of service, and place of visit. While the numbers presented in the table are small, it is of interest to note that the person served or a member of the family was usually the source of call for either immunization service or medical or social relief. Thus among 111 persons obtaining an immunization of one type or another outside of special immunization clinics, 103, or 93 percent, were given upon the solicitation of the patient or the patient's family. Similarly, where the first visit was for medical or social relief, 75 percent were instituted by the patient or his family. However, for communicable disease patients, the informant was more frequently a physician or a school teacher, each reporting an equal number of cases and together accounting for over half of the 178 cases. When the first visit was made to the home, the informant who instituted the contact was the

individual served or a member of the family for 64 percent of the cases and the family physician for 13 percent. For office calls the patient or patient's family and the teacher were most frequently the informants.

NUMBER OF PERSONS SERVED EACH MONTH

Table 8 lists for each month the number of individuals who were recorded as having had service contacts. Except when some type of campaign or group service activity was being carried on, the number of persons visited in the course of a month was small. The health officer was engaged with group service during November, March, and April. Almost 78 percent of all persons recorded with some type of service during the 10 months' period of study were seen for the first time during the 3 months mentioned above. In November, the schools were visited for the purpose of immunizing the first-grade pupils against smallpox and diphtheria. Subsequent visits were made to the schools in March and April for the purpose of Schick-testing children who had been given toxoid earlier in the school term or during a diphtheria immunization campaign of the preceding school year. Diphtheria toxoid was then given to those having a positive Schick reaction.

TABLE 8.—*Number of individuals served by health officer during the study period according to calendar month*

	September	October	November	December	January	February	March	April	May	June	Total number of individuals served in study period
Number of persons served for first time during study period	105	301	817	38	104	78	1,446	845	55	203	3,992
Percent of total number persons served during study period	2.6	7.5	20.5	1.0	2.6	2.0	36.2	21.2	1.4	5.1	100.0
Total number of persons served each month	105	308	923	54	120	83	1,743	1,100	68	243	

ADMINISTRATIVE ACTIVITIES

Much of the attention of the health officer was occupied by activities which were of an administrative character as distinguished from those involving an element of personal service. The remainder of the paper will be devoted to a consideration of the administrative duties of the health officer.

CONFERENCES

The number of conferences held during the study period was 219. Most of these were for the purpose of planning or discussing some part of the health department program. Thirty-five conferences were

held with physicians; 22 of these were in regard to clinics or the control of communicable disease, and the remainder were for the purpose of arranging medical care. Fourteen of the 18 practicing physicians residing within the county were represented among the administrative contacts. The interests represented by the individuals with whom the health officer conferred and the number of conferences are presented in table 9. All but 1 of the 32 conferences with county superintendents of the poor were in regard to the problem of medical care or relief for indigents. Only two of these conferences were with the Greensville County Superintendent of the Poor; the remainder were held with the Superintendent of the Poor for Brunswick County. At the time of this study, the income of the several local governments was undergoing a reduction, and retrenchment was a subject for frequent consideration by the county authorities; therefore most of the conferences with town officials and county supervisors were for the purpose of discussing the health department's appropriations. Practically all conferences with members of the health department staff, community leaders, teachers, and county school superintendents pertained to health department services.

According to the purpose stated on the record, 43 percent of the conferences were to plan or discuss health department service, 14 percent were in regard to health department appropriations, and 22 percent were held because of medical or material relief problems. The remainder were for miscellaneous purposes. About 45 percent of the conferences took place in the health department office at Lawrenceville; 52 percent were held on the premises or in the offices of those seen; and the remaining 3 percent were held in other places.

TABLE 9.—*Number of conferences held by health officer during study period*

Persons or groups	Number	Persons or groups	Number
Physicians	35	Teachers	9
County superintendents of the poor	32	Community leaders	8
Members of State health department	29	Members of health department staff	10
County boards of supervisors	16	U S Public Health Service representatives	14
County superintendents of schools	12	Others	24
Other county officials	17		
Town officials	13	Total	219

TIME ANALYSIS

Counting Saturdays as half days, the health officer was on duty 225 of the 231.5 work days contained in the 10-month period of the study. His records accounted for a total of approximately 1,502 hours on duty, which was an average of practically 6 hours and 40 minutes per day, thus approximating a work day of 7 hours. The time spent on duty was the customary amount for that locality. Nearly 58 percent of the time was spent on duties connected with

the health department offices, 20 percent was consumed by automobile travel, about 8 percent was spent in schools, 4 percent in the homes of patients or other persons, and 10 percent was spent in other places in the field.

TABLE 10.—*Distribution of health officer's time on duty over a period of 10 months*

	Hours			
	Number		Percent	
Service to individuals		472 0		31 4
Immunization service	223 4		14 9	
Control of communicable disease	143 4		9 5	
Arranging for or investigating the need of medical or material relief	76 1		5 1	
Miscellaneous services	29 1		1 9	
Staff supervision and conferences with members of staff or of State health department		182 5		12 2
Conferences with officials, teachers, doctors, community leaders, and others		124 1		8 3
Supervision of health department clinics		115 4		7 7
Administrative duties other than conferences, clinics or staff supervision		608 0		40 5
Reports and correspondence	260 5		17 3	
Attending meetings	10 5		0 7	
Reading and study of journals and scientific publications	30 0		2 0	
Other and unclassified	307 0		20 4	
Total		1,502 0		100 0

According to table 10, about 31 percent of the health officer's time was taken up by service to individuals. Supervision of personnel and conferences with members of the staff or those of the State health department consumed 12 percent of the time. During the study period the health department sponsored a tonsillectomy clinic and a refraction clinic. Each month orthopedic clinics were held in Lawrenceville and Emporia. The State health department also held tuberculosis clinics in each of the counties. The health officer attended most of these clinics in a supervisory capacity and spent almost 8 percent of his time in this manner. Administrative duties other than conferences or supervision of staff members or clinics consumed the greatest proportion of his time; preparing monthly reports for the State health department and the work of correspondence took up 17 percent of his time; and 20 percent of it may be described as unassigned, in which the health officer was on duty but not engaged in specific activities. Most of the unassigned time was spent in the health department headquarters, thus affording residents of the county an opportunity to call upon him for advice, instruction, or other services.

SUMMARY

The activities of one rural health officer working in a bicounty health department were studied for a period of 10 months. The records reveal that approximately 12 percent of the 34,000 people living within the health district received some type of personal service. Immunization was the type of personal service rendered to 90 percent of these individuals, who, for the most part, were children of

school age. Over three-fourths of the initial service contacts were made in 3 of the 10 months under study. Ninety percent of the persons served by the health officer were seen through group services conducted in the schools.

Control of communicable diseases was the specific health problem to which the health officer gave special attention. About 10 percent of his time was devoted to general control measures, and 15 percent was spent on immunization, including tests for susceptibility to diphtheria.

Professional conferences with individual citizens, staff members, practicing physicians, and community leaders accounted for approximately 35 percent of the health officer's time. The remaining 40 percent was consumed by general and administrative duties which did not involve direct contact with individuals requiring personal service or with situations presenting immediate health problems.

COST OF LOCAL ENFORCEMENT OF THE UNITED STATES PUBLIC HEALTH SERVICE MILK ORDINANCE

By A. W. Fuchs, *Sanitary Engineer*, and L. C. Frank, *Sanitary Engineer, in charge, Office of Milk Investigations, United States Public Health Service*

For a number of years those inquiring as to the cost of community milk control under the Public Health Service program were informed that the cost was usually less than 10 cents per capita per year. This estimate was based on the experience of a limited number of towns, and was consequently considered only approximate. Cities contemplating the adoption of the Public Health Service Milk Ordinance frequently want to know what the cost of enforcement will be. Those operating under the ordinance sometimes question whether they are spending enough or (rarely) too much for adequate milk control.

A questionnaire survey was therefore undertaken in November 1934 to determine the local cost of milk control in all cities having milk-sanitation ratings of 90 percent or more, i. e., in cities which may be classed as satisfactorily enforcing the Public Health Service Milk Ordinance. The survey was so planned as to reveal variations in cost in cities differing in size, per capita milk consumption, percent of supply pasteurized, and similar differences.

Questionnaires were mailed to 101 cities with milk-sanitation ratings of 90 percent or more, including 99 appearing in the published lists (Public Health Reports, July 27, 1934, and Oct. 26, 1934) and 2 others which subsequently qualified before November 26, 1934. Returns were received from 84; and after considerable checking and correspondence, 74 of the returns were considered sufficiently satisfactory as to cost figures for inclusion in this report. The cities included range in population from under 1,000 to over 300,000.

LOCAL MILK CONTROL ORGANIZATION

The organization of milk-control activities varies widely in the 74 cities. In the largest cities, milk control is usually a function of the city health department, but in the smaller ones the county health department commonly conducts this work. Milk sanitation is under the city health department in 21 of the cities, under the county health department in 45, under the city water superintendent acting as part-time dairy inspector and laboratory technician in 5 communities, and under a private veterinarian or physician acting as part-time dairy inspector in 3 cities.

In most of the larger cities there is a separate division of milk control in the health department or milk control is combined in one division with food, sanitation, or other health activity. In a few of the smaller cities a whole-time dairy inspector is employed by the health department, and in a few others the city or county health officer acts as milk inspector; but the most frequent arrangement in small cities (40 cities) is the employment of a whole-time inspector for general sanitation who devotes part of his time to milk control in one or more communities. Thus the county health organization often makes possible general sanitation service as well as milk sanitation in communities too small to employ their own inspector.

Milk analyses are usually made in the city or county health department laboratory. In 19 of the smaller cities, samples are sent to the branch or central laboratory of the State health department. A few cities have their milk examined in the water-works laboratory, the general city laboratory, or in a private laboratory.

Some of the returns indicated that a portion of the health officer's salary and travel expense is chargeable to milk control, but these were not included in the cost figures except in those cases where the health officer actually served as dairy inspector or laboratory technician.

COST OF ENFORCEMENT

Essential figures for each city on the cost of enforcement and related data are shown in the accompanying table.

The mean per capita cost of local enforcement in 74 cities rating 90 percent or more is 8.3 cents per year. The maximum for any city is 19.9 cents and the minimum 1.7 cents. In 47 cities, or nearly two-thirds of the total, the cost was under 10 cents per capita per year, thus confirming earlier estimates. For 35 cities over 10,000 population the mean per capita cost was approximately 7 cents per year, while for 39 cities under 10,000 it was 9.5 cents.

Local cost of enforcement of the United States Public Health Service milk ordinance in 1934 in 74 cities rating 90 percent or more

City	1930 population	Per capita consumption of market milk, pints per day [1]	Percent of supply pasteurized [1]	Number of producers and plants: Per 100,000 population [1]	Number of producers and plants: Per whole-time inspector	Number of full-time or equivalent part-time inspectors per 100,000 population	Local cost of enforcement: Total per year	Local cost of enforcement: Cents per gallon	Local cost of enforcement: Cents per capita per year	Local cost of enforcement: Dollars per producer or plant per year
OVER 100,000										
Louisville, Ky	307,745	0.61	97	388	100	3.9	$31,718.45	0.35	10.3	27
Portland, Oreg	301,815	.72	76	330	125	2.7	21,328.00	.22	7.1	21
Dallas, Tex	260,745	[2].96	73	282	167	1.7	11,466.05	.10	4.4	16
Memphis, Tenn	253,143	.53	73	265	120	2.2	15,229.00	.24	6.0	23
San Antonio, Tex	231,542	.54	56	146	62	2.4	11,745.18	.21	5.1	35
Tulsa, Okla	141,258	.70	74	155	73	2.1	12,025.00	.27	8.5	55
El Paso, Tex	102,421	.72	70	135	99	1.4	3,532.00	.11	3.4	26
7 cities	1,598,669	.68	74	269	107	2.5	----------	.21	6.4	29
25,000–100,000										
Winston-Salem, N. C	75,274	.38	46	235	177	1.3	2,775.00	.21	8.7	16
Montgomery, Ala	66,079	.61	22	147	97	1.5	[3]2,082.80	.11	3.1	21
Charleston, S. C	62,265	.36	[2]100	96	25	3.9	6,932.50	.67	11.1	115
Durham, N. C	52,037	.48	76	187	65	2.9	6,085.00	.52	11.7	63
Jackson, Miss	48,282	.47	22	185	89	2.1	[3]1,225.00	.12	2.5	[4]14
Amarillo, Tex	43,132	.63	63	209	85	2.5	2,741.25	.22	6.4	30
Meridian, Miss	31,954	.39	22	176	56	3.1	3,350.00	.58	10.5	60
Texarkana, Tex.-Ark	27,366	.47	20	187	57	3.3	2,904.00	.49	10.6	57
8 cities	406,389	.47	46	177	81	2.4	----------	.37	7.5	47
10,000–25,000										
Gadsden, Ala	24,042	.45	24	75	36	2.1	[3]1,198.50	.24	5.0	67
Abilene, Tex	23,175	.66	70	152	52	2.9	1,737.50	.25	7.5	50
Vicksburg, Miss	22,943	.33	35	175	44	3.9	2,605.58	.75	11.4	65
Rocky Mount, N. C	21,412	.30	20	98	35	2.8	1,500.00	.52	7.0	71
Tuscaloosa, Ala	20,659	.48	75	141	73	1.9	1,060.00	.23	5.1	37
Tyler, Tex	17,113	.77	50	263	60	[5]4.4	2,475.00	.41	14.5	55
Walla Walla, Wash	15,976	.75	56	321	51	[5]6.3	1,590.00	.29	10.0	31
Vancouver, Wash	15,766	.56	24	293	58	[5]5.1	1,538.00	.38	9.8	33
Decatur, Ala	15,593	.22	44	129	50	2.6	[3]888.00	.56	5.7	44
Corsicana, Tex	15,202	.41	0	164	50	[5]3.3	614.50	.22	4.0	25
Greenville, Miss	14,807	.35	13	142	84	1.7	791.75	.34	5.4	38
Big Spring, Tex	13,735	.46	23	139	76	1.8	445.25	.15	3.2	23
Natchez, Miss	13,422	.52	16	157	70	2.2	[3]750.00	.24	5.6	36
Bowling Green, Ky	12,348	.67	25	293	144	2.0	617.00	.16	5.0	17
Florence, Ala	11,729	.28	35	145	34	4.3	[3]736.86	.49	6.3	43
Henderson, Ky	11,668	.37	37	121	[2]233	[4].5	314.60	.16	2.7	22
Huntsville, Ala	11,554	.51	53	165	63	2.6	538.00	.20	4.7	28
Greenwood, Miss	11,123	.32	23	180	40	4.5	[3]990.00	.62	8.9	50
Thomasville, N. C	10,090	.20	30	60	75	[5].8	175.00	.19	[4]1.7	29
McComb, Miss	10,057	.44	0	250	37	6.7	[3]1,541.60	.76	15.3	62
20 cities	312,414	.45	33	169	68	3.1	----------	.36	6.9	41
UNDER 10,000										
Denton, Tex	9,587	.65	58	347	100	3.5	1,200.00	.42	12.5	36
Blackwell, Okla	9,521	.46	46	337	32	10.5	1,870.00	.93	19.6	58
Dyersburg, Tenn	8,733	.35	0	115	40	2.9	[3]367.50	.26	4.2	37
Talladega, Ala	7,596	.29	0	133	125	1.1	157.67	.16	2.1	16
Jacksonville, Tex	6,748	.55	0	119	53	2.2	481.25	.29	7.1	60
Mount Airy, N. C	6,045	.36	0	150	45	3.3	410.00	.41	6.8	45
Brenham, Tex	5,974	.39	0	186	137	[5]1.4	176.20	.17	2.9	16
Brookhaven, Miss	5,288	.42	0	212	55	3.8	[3]415.00	.41	7.8	38
Canton, N. C	5,117	.52	0	118	27	4.3	515.00	.43	10.1	86
Hendersonville, N. C	5,070	.68	35	500	50	10.0	915.00	.58	18.0	37
Hamlet, N. C	4,801	.30	0	63	30	[5]2.1	180.00	.27	3.7	60
Picayune, Miss	4,698	.67	76	[2]587	90	6.5	702.00	.49	14.9	26
Sanford, N. C	4,253	.34	0	95	[4]6	[3]16.7	816.67	1.23	19.2	[3]204
Lumberton, N. C	4,140	.40	0	98	40	2.4	300.00	.40	7.2	75
Sylacauga, Ala	4,115	.92	0	195	100	2.0	157.67	[4].09	3.8	20
Erwin, N. C	4,000	.17	0	75	-----	-------	165.00	.54	4.1	55
Albemarle, N. C	3,493	.65	0	265	129	2.1	425.00	.41	12.2	47

See footnotes at end of table.

Local cost of enforcement of the United States Public Health Service milk ordinance in 1934 in 74 cities rating 90 percent or more—Continued

City	1930 population	Per capita consumption of market milk, pints per day[1]	Percent of supply pasteurized[1]	Number of producers and plants: Per 100,000 population[1]	Number of producers and plants: Per whole-time inspector	Number of full-time or equivalent part-time inspectors per 100,000 population	Local cost of enforcement: Total per year	Local cost of enforcement: Cents per gallon	Local cost of enforcement: Cents per capita per year	Local cost of enforcement: Dollars per producer or plant per year
UNDER 10,000—continued										
Morehead City, N. C	3,483	0.22	0	176	-----	--------	540.00	1.54	15.5	90
Covington, Tenn	3,397	.33	0	333	220	1.5	[3] 190.00	.37	5.6	17
Tuskegee, Ala	3,314	.63	52	212	14	15.2	[3] 625.00	.66	18.9	89
Cleveland, Miss	3,240	.49	41	375	200	1.9	180.00	.25	5.6	15
Russellville, Ala	3,146	.14	0	97	50	1.9	[3] 254.08	1.22	8.1	85
Indianola, Miss	3,116	[4].04	0	[4] 32	20	1.6	98.00	[2]1.68	3.1	98
Atmore, Ala	3,005	.40	0	167	100	1.7	[3] 100.00	.18	3.3	20
Rockingham, N. C	2,906	.66	0	172	33	[5] 5.2	300.00	.34	10.3	60
Canyon, Tex	2,821	.81	0	286	133	2.1	161.25	.15	5.7	20
Cullman, Ala	2,786	.68	28	407	85	4.8	[3] 207.50	.24	7.4	19
Auburn, Ala	2,713	.54	0	259	70	3.7	[3] 300.00	.45	11.1	43
Southern Pines, N. C	2,524	.76	0	240	-----	-----	145.00	.17	5.7	24
Clayton, N. Mex	2,518	.66	0	280	70	4.0	500.00	.66	[2]19.9	71
Waynesville, N. C	2,414	.66	0	250	55	4.6	256.67	.36	10.6	43
Wetumpka, Ala	2,357	.50	0	130	15	8.7	[3] 349.00	.65	14.8	116
Elkin, N. C	2,357	.61	0	174	20	8.7	410.00	.62	17.4	102
Hartselle, Ala	2,204	.18	0	136	30	4.5	[3] 222.00	1.22	10.1	74
York, Ala	1,796	.20	0	118	80	1.5	[3] 69.00	.43	3.8	35
Ocean Springs, Miss	1,663	.37	0	250	100	2.5	79.20	.28	4.8	20
Hollandale, Miss	1,211	.30	0	333	80	4.2	141.90	.86	11.7	35
Hope Mills, N. C	971	.18	0	206	67	3.3	85.00	1.06	8.8	43
Apex, N. C	863	.19	0	232	40	6.3	116.50	1.60	13.5	58
39 cities	154,014	.45	9	216	71	4.	------------	.58	9.5	54
74 cities	2,471,486	.47	26	237	75	2.7	------------	.46	8.3	47

[1] Figures taken from last rating report received prior to December 1934, but no rating used was more than 2 years old.
[2] Maximum for 74 cities.
[3] All milk laboratory work done by State.
[4] Minimum for 74 cities.
[5] Inspector also does milk laboratory work.

On a gallonage basis, the mean cost of local enforcement for all cities was 0.46 cent per gallon. The maximum for any city was 1.68 cents and the minimum 0.09 cent. In 51 cities, a little over two-thirds of the total, the cost was less than 0.5 cent per gallon. Per-gallon costs decrease materially as the size of city increases. Thus, for cities under 10,000 the mean was 0.58 cent, for those between 10,000 and 100,000 it was 0.36 cent, and for those over 100,000 it was 0.21 cent. These per-gallon costs may be of particular interest to cities contemplating the financing of milk control by means of inspection fees imposed on milk distributors on a gallonage basis.

The mean cost of local enforcement per producer or plant for the 74 cities was $47 per year, and this is probably the fairest cost index. The maximum for any city was $204 and the minimum $14. In 47 cities, or nearly two-thirds of the total, the cost was not over $50 per producer or plant. These costs vary inversely with size of city. Thus, for cities over 100,000 the mean was $29, for those between 10,000 and 100,000 it was $43, and for those under 10,000 it was $54.

Whether milk analyses are made gratis by the State or are made locally affects the mean unit costs of local milk control only slightly. This is probably because such State cooperation is more frequently extended to the smaller cities, in which mean unit costs were found to be higher than in the larger cities. The mean per capita cost in the 19 cities for which laboratory work was done by the State was 7.8 cents per year, and in the 55 cities making their own analyses 8.5 cents. The mean per-gallon costs are 0.49 cent and 0.45 cent, and per producer or plant, $48 and $47 per year, respectively.

Large differences in unit costs are found. These are due not only to the effect of differences in population, per capita consumption, and number of producers and plants per unit of population and per inspector, but also to the frequency of inspection and sampling considered necessary by local milk control authorities for effective control. Thus, while the United States Public Health Service Milk Ordinance specifies grading of all dairies and plants at least every 6 months, and a minimum of 1 inspection and 4 samples during each grading period, some standard ordinance cities inspect and sample more frequently than at these maximum intervals To do this requires, of course, more personnel and results in higher unit costs.

Unfortunately no information is available from which to judge optimum grading, inspection, and sampling frequencies. It is reasonable to suppose that higher frequencies mean better enforcement, but frequencies higher than the optimum fail to achieve results commensurate with the cost—an example of the "law of diminishing returns" While conditions on some milk sheds may demand more intensive control measures than the average, it would appear that unit costs not exceeded by two-thirds of the cities effectively enforcing their milk ordinances are reasonable guiding criteria. These unit costs are 10 cents per capita per year, 0.5 cent per gallon, and $50 per year per producer or plant.

SUMMARY

The mean cost of milk control in 1934 in 74 cities adequately enforcing the United States Public Health Service Milk Ordinance was 8.3 cents per capita per year, 0.46 cent per gallon of milk, or $47 per producer or plant per year. All unit costs were generally lower in the larger than in the smaller cities. Figures not exceeded by approximately two-thirds of the cities (10 cents per capita per year, 0.5 cent per gallon, and $50 per producer or plant per year) are considered reasonable limits. Unit costs are affected by the per capita consumption, the extent of pasteurization, the number and character of the dairies and plants, and the frequency of inspection and sampling.

DEATHS DURING WEEK ENDED NOV. 23, 1935

[From the Weekly Health Index, issued by the Bureau of the Census Department of Commerce]

	Week ended Nov 23 1935	Corresponding week, 1934
Data from 86 large cities of the United States		
Total deaths	8 022	8 128
Deaths per 1 000 population, annual basis	11 2	11 3
Deaths under 1 year of age	519	586
Deaths under 1 year of age per 1,000 estimated live births	48	54
Deaths per 1 000 population annual basis first 47 weeks of year	11 3	11 3
Data from industrial insurance companies		
Policies in force	67 760 080	67 055 908
Number of death claims	13 071	12 961
Death claims per 1 000 policies in force annual rate	10 1	10 1
Death claims per 1 000 policies first 47 weeks of year annual rate	9 5	9 8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Nov. 30, 1935, and Dec. 1, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 30, 1935, and Dec. 1, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934
New England States:								
Maine	1	2		1	74	12	1	0
New Hampshire					2	17	0	0
Vermont		3			35	7	0	0
Massachusetts	12	7			60	98	1	1
Rhode Island		2			14	1	0	0
Connecticut	4	2	18	1	29	258	2	2
Middle Atlantic States:								
New York	42	47	[1] 14	[1] 42	397	622	6	2
New Jersey	21	23	7	38	12	48	0	1
Pennsylvania	35	34			48	486	2	1
East North Central States:								
Ohio	89	128	70	58	65	244	0	2
Indiana	47	57	35	20	12	219	4	0
Illinois [2]	61	68	16	37	12	598	9	4
Michigan	30	14	2	5	16	94	2	0
Wisconsin	4	8	34	5	57	234	2	0
West North Central States:								
Minnesota	7	4	1	1	49	205	1	0
Iowa	18	17	7		5	406	3	1
Missouri	75	51	95	70	26	71	3	3
North Dakota		3			12	53	0	0
South Dakota		1		1	3	39	0	0
Nebraska	7	12	1	1	9	11	2	0
Kansas	15	11	16		8	175	1	1
South Atlantic States:								
Delaware	1	2			82	1	0	0
Maryland [3]	13	23	3	7	15	38	5	0
District of Columbia	22	6			1	2	8	0
Virginia [4]	49	99			11	123	0	2
West Virginia	49	47	25	31	9	157	0	1
North Carolina [5]	60	50	6	5	9	230	1	2
South Carolina	4	9	162	239	1	2	0	0
Georgia [5]	22	24	19			0	2	0
Florida	10	17	6			1	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 30, 1935, and Dec. 1, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934
East South Central States:								
Kentucky	36	78	9	46	31	144	1	0
Tennessee [5]	57	42	34	40	2	28	6	1
Alabama [5]	34	36	53	103	6	52	2	1
Mississippi [3]	9	13					0	1
West South Central States:								
Arkansas	17	32	51	93		4	1	0
Louisiana	34	25	11	5	11	8	0	0
Oklahoma [6]	20	14	90	16		1	0	0
Texas [5]	155	83	218	117	5	11	3	1
Mountain States:								
Montana	1	12	6		16	18	1	0
Idaho	1		1		6	4	0	1
Wyoming	3				2	6	0	2
Colorado	11	7			10	140	1	1
New Mexico	2	5	3	10	1	62	0	0
Arizona	6	4	54	28	1	17	0	0
Utah [3]	2	1		2	1	9	0	1
Pacific States:								
Washington	4	3			125	131	6	0
Oregon		1	24	18	230	10	2	1
California	52	45	23	28	127	111	2	1
Total	1,142	1,172	1,123	1,068	1,647	5,208	80	34
First 48 weeks of year	34,173	36,503	112,880	58,460	711,070	697,734	5,155	2,093

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934
New England States:								
Maine	1	0	18	26	0	0	2	2
New Hampshire	1	0	16	8	0	0	0	1
Vermont	0	0	9	13	0	0	2	1
Massachusetts	5	0	167	127	0	0	2	1
Rhode Island	3	0	18	20	0	0	0	0
Connecticut	5	0	32	38	0	0	0	0
Middle Atlantic States:								
New York	17	3	479	371	0	0	9	11
New Jersey	6	0	97	90	0	0	4	8
Pennsylvania	2	2	233	289	0	0	8	13
East North Central States:								
Ohio	0	3	444	662	1	2	8	8
Indiana	0	0	160	176	5	3	4	4
Illinois [2]	6	2	464	538	2	2	8	20
Michigan	1	4	201	168	0	1	3	9
Wisconsin	0	2	427	384	9	31	2	2
West North Central States:								
Minnesota	1	3	266	112	1	6	0	1
Iowa	6	0	107	54	3	1	28	1
Missouri	2	0	141	104	1	2	2	16
North Dakota	0	1	37	49	0	1	1	0
South Dakota	0	0	57	13	6	14	0	0
Nebraska	0	0	133	28	52	4	2	2
Kansas	1	5	96	48	5	5	3	3
South Atlantic States:								
Delaware	1	0	11	5	0	0	1	0
Maryland [3]	6	1	104	86	0	0	13	5
District of Columbia	0	0	13	26	0	0	2	1
Virginia [4]	2	0	47	99	0	0	4	17
West Virginia	1	0	91	152	0	0	4	15
North Carolina [3]	2	0	58	73	0	0	5	7
South Carolina	2	0	7	10	0	0	2	3
Georgia [3]	0	0	28	28	0	0	8	4
Florida	0	0	7	6	0	0	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Nov. 30, 1935, and Dec. 1, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934	Week ended Nov. 30, 1935	Week ended Dec. 1, 1934
East South Central States:								
Kentucky	2	1	79	76	0	1	15	15
Tennessee [5]	1	0	61	76	1	1	4	12
Alabama [5]	2	0	18	33	0	0	5	2
Mississippi [2]	3	0	19	32	0	0	7	11
West South Central States:								
Arkansas	4	0	16	29	0	1	2	15
Louisiana	0	1	14	21	0	0	10	10
Oklahoma [6]	0	0	43	16	4	2	14	14
Texas [5]	0	4	76	41	1	5	27	50
Mountain States:								
Montana	1	0	107	8	41	0	0	0
Idaho	1	0	36	3	1	0	3	1
Wyoming	0	0	90	28	4	1	0	0
Colorado	0	1	189	121	6	1	0	13
New Mexico	1	1	19	19	0	0	7	6
Arizona	2	1	25	17	0	0	1	0
Utah [3]	0	0	100	28	0	1	0	0
Pacific States:								
Washington	2	9	93	32	37	33	4	6
Oregon	7	2	60	56	0	1	2	1
California	4	24	246	185	10	5	10	9
Total	95	70	5,259	4,624	190	124	238	321
First 48 weeks of year	10,501	7,091	227,148	193,728	6,655	4,624	16,739	19,993

[1] New York City only.
[2] Report for week ended Nov. 30, 1935, incomplete.
[3] Week ended earlier than Saturday.
[4] Rocky Mountain spotted fever, week ended Nov. 30, 1935, Virginia, 1.
[5] Typhus fever, week ended Nov. 30, 1935, 15 cases, as follows: North Carolina, 1; Georgia, 6; Tennessee, 1; Alabama, 3; Texas, 4.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October 1935										
Arizona	2	14	115	9	7		1	56	0	11
California	14	292	113	32	589	15	103	889	4	84
Mississippi	3	116	1,637	6,401	8	280	2	101	1	9
Montana	3	8	37		89			302	255	9
Nevada			11		8		1	72	0	1
North Dakota	1	18			16		2	118	2	12
Washington	6	9	57	1	302		10	187	63	23

October 1935

	Cases
Anthrax:	
California	2
Chicken pox:	
Arizona	31
California	998
Mississippi	158
Montana	115
Nevada	5
North Dakota	75
Washington	286
Conjunctivitis, infectious:	
Arizona	3
Dengue:	
Arizona	1
Mississippi	4
Dysentery:	
Arizona	17
California (amoebic)	19
California (bacillary)	41
Mississippi (amoebic)	93
Mississippi (bacillary)	338
Washington (bacillary)	1
Epidemic encephalitis:	
Arizona	7
California	12
Mississippi	1
Montana	2
Washington	4
Food poisoning:	
California	48
German measles:	
Arizona	4
California	200

October 1935—Continued

	Cases
German measles—Contd.	
Montana	4
Washington	41
Granuloma, coccidioidal:	
California	3
Hookworm disease:	
California	1
Mississippi	294
Impetigo contagiosa:	
Washington	13
Leprosy:	
California	5
Mumps:	
Arizona	125
California	951
Mississippi	179
Montana	388
Nevada	6
North Dakota	287
Washington	198
Ophthalmia neonatorum:	
California	7
Paratyphoid fever:	
California	7
Puerperal septicemia:	
Mississippi	14
Rabies in animals:	
California	50
Mississippi	4
Relapsing fever:	
California	3
Scabies:	
Washington	1

October 1935—Continued

	Cases
Septic sore throat:	
California	7
Montana	14
Washington	3
Tetanus:	
California	6
Trachoma:	
Arizona	51
California	33
Mississippi	9
Washington	11
Trichinosis:	
California	15
Tularaemia:	
California	2
Washington	1
Typhus fever:	
Mississippi	1
Nevada	1
Undulant fever:	
Arizona	3
California	22
Montana	1
Washington	2
Vincent's infection:	
North Dakota	7
Washington	1
Whooping cough:	
Arizona	28
California	543
Mississippi	263
Montana	91
North Dakota	38
Washington	34

WEEKLY REPORTS FROM CITIES

City reports for week ended Nov. 23, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	1	1	0	1	1	7	21
New Hampshire:											
Concord	1		0	0	0	2	0	0	0	0	4
Manchester						1					
Nashua	0			0		1	0		0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	4
Burlington	0		0	0	0	0	0	0	0	0	7
Rutland	0		0	2	0	0	0	0	0	0	3
Massachusetts:											
Boston	2		2	10	14	46	0	10	0	5	228
Fall River	0		0	1	2	2	0	2	1	1	28
Springfield	0		0	1	0	3	0	0	0	8	27
Worcester	0		0	2	1	18	0	1	0	2	36
Rhode Island:											
Pawtucket											
Providence	0		2	0	2	2	0	4	0	4	62
Connecticut:											
Bridgeport	0	3	0	0	2	3	0	1	0	1	29
Hartford	1	1	0	2	2	3	0	0	4	15	37
New Haven	0		0	0	1	1	0	0	0	26	49
New York:											
Buffalo	2		0	9	14	45	0	5	0	0	140
New York	18	4	4	109	106	86	0	86	9	107	1,407
Rochester	0		0	1	2	7	0	2	1	4	53
Syracuse	0		0	0	4	4	0	0	0	13	38
New Jersey:											
Camden	0		0	0	2	3	0	0	1	1	27
Newark	0	2	0	1	4	26	0	6	0	34	87
Trenton	0		0	0	0	6	0	0	0	1	25
Pennsylvania:											
Philadelphia	9	3	1	22	23	80	0	10	2	82	397
Pittsburgh	5	2	1	9	19	55	0	7	0	32	130
Reading	0		0	2	0	1	0	0	0	0	25
Scranton	0			0		1	0		0	0	

City reports for week ended Nov. 23, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Ohio:											
Cincinnati	18	-----	2	4	12	9	0	9	0	4	142
Cleveland	2	24	4	2	17	25	0	12	1	43	196
Columbus	9	2	2	1	6	14	0	3	2	1	85
Toledo	0	2	2	29	3	4	0	4	0	5	82
Indiana:											
Anderson	1	-----	1	0	0	2	0	0	0	2	8
Fort Wayne	9	-----	0	0	3	12	0	1	0	0	23
Indianapolis	3	-----	0	1	12	11	0	2	0	14	88
Muncie	0	-----	0	1	1	0	0	0	0	0	8
South Bend	0	-----	0	0	1	1	0	0	0	2	20
Terre Haute	0	-----	0	0	0	4	0	2	0	0	21
Illinois:											
Alton	7		0	0	2	4	0	0	0	1	7
Chicago	15	5	4	10	31	169	0	46	1	106	660
Elgin	0		0	0	0	2	0	0	0	0	7
Moline	0	-	0	0	0	0	0	0	1	0	14
Springfield	0	--	0	0	1	5	0	0	0	3	17
Michigan:											
Detroit	18	2	1	6	20	67	0	15	1	170	248
Flint	0	--	0	4	4	16	0	1	0	8	25
Grand Rapids	0		1	4	0	17	0	2	0	7	31
Wisconsin:											
Kenosha	0	--	0	0	1	14	0	0	0	15	4
Milwaukee	0	1	1	3	5	41	0	3	0	103	97
Racine	0	-----	0	0	0	15	1	0	0	7	14
Superior	0	--	0	1	0	2	0	0	0	0	11
Minnesota:											
Duluth	0	-	0	0	0	1	0	0	1	22	19
Minneapolis	3	-	1	4	14	90	0	2	2	8	119
St. Paul	0	--	0	1	8	34	0	0	0	1	54
Iowa:											
Cedar Rapids	0	--	0	0	0	0	0	0	0	3	-
Davenport	0	-----	---	0		2	0		0	0	-
Des Moines	0	---	-	0		3	0		0	0	34
Sioux City	1	-	-----	1		10	0	-	0	0	
Waterloo	7		------	0		7	0		0	2	--
Missouri:											
Kansas City	5	--	0	1	13	12	0	4	0	1	93
St. Joseph	8	-	0	0	0	1	0	1	0	6	24
St. Louis	16	-	1	1	8	36	0	2	0	3	202
North Dakota:											
Fargo	1		0	0	0	6	5	0	0	0	7
Grand Forks	0	----	-----	0	-	0	0	-	0	0	------
Minot	0	--	0	0	0	3	0	0	0	0	7
South Dakota:											
Aberdeen	0	-----	-----	0	--	0	0	-------	0	0	--------
Nebraska:											
Omaha	4	---	0	0	4	65	3	0	0	0	43
Kansas:											
Lawrence	0	---	0	1	0	0	0	0	0	0	1
Topeka	--	--	-	-----	----	----	-----	--	--	-------	--
Wichita	3	----	0	1	2	7	0	0	0	0	22
Delaware:											
Wilmington	1	-----	0	0	4	1	0	0	0	1	28
Maryland:											
Baltimore	5	5	0	3	13	29	0	9	3	23	205
Cumberland	0	3	1	0	1	6	0	1	0	0	10
Frederick	0	----	0	1	0	0	0	0	0	0	2
District of Columbia:											
Washington	20	2	2	2	11	10	0	4	0	0	153
Virginia:											
Lynchburg	2	------	0	0	1	0	0	0	0	7	9
Richmond	0	------	0	0	4	5	0	2	0	0	48
Roanoke	3	------	0	0	2	3	0	0	0	0	17
West Virginia:											
Charleston	2	----	0	1	0	3	0	0	0	1	13
Huntington	0	------	------	0	------	3	0	------	0	0	--
Wheeling	0	-----	0	0	2	0	0	2	0	0	23
North Carolina:											
Gastonia	0	------	0	0	0	0	1	0	0	0	3
Raleigh	0	------	0	0	0	1	0	1	0	0	12
Wilmington	1	------	0	0	2	0	0	0	0	1	9
Winston-Salem	1	-----	0	0	3	3	0	0	0	8	14
South Carolina:											
Charleston	0	13	0	0	1	1	0	2	1	0	30
Columbia	0	----	0	0	2	0	0	0	0	0	9
Florence	0	------	0	0	0	0	0	0	0	0	9
Greenville	2	------	0	0	1	1	0	0	1	0	8

City reports for week ended Nov. 23, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Georgia:											
Atlanta	8	5	1	0	6	8	0	3	0	1	77
Brunswick	1	------	0	1	1	0	0	0	0	0	7
Savannah	8	3	0	------	3	6	0	3	0	2	33
Florida:											
Miami	1	------	0	0	2	0	0	2	0	0	29
Tampa	1	------	0	0	2	0	0	1	0	0	24
Kentucky:											
Ashland	3	------	------	0	------	1	0	------	0	0	------
Covington	0	------	0	0	1	2	0	3	0	0	13
Lexington	1	------	0	0	3	2	0	2	0	0	18
Louisville	4	------	0	1	4	15	0	3	1	0	78
Tennessee:											
Knoxville	4	6	0	0	1	4	0	0	0	0	21
Memphis	2	------	0	0	7	10	0	4	2	4	84
Nashville	2		1	1	6	1	0	2	0	0	68
Alabama:											
Birmingham	2	------	1	0	1	3	0	5	0	0	56
Mobile	0	------	0	0	4	0	0	0	0	0	18
Montgomery	1	------	------	0	------	0	0	------	0	2	------
Arkansas:											
Fort Smith	1	------	------	0	------	2	0		0	0	------
Little Rock	0		0	0	1	0	0	0	0	0	1
Louisiana:											
Lake Charles	0		0	0	0	0	0	0	0	0	7
New Orleans	8	------	0	3	12	1	0	12	1	1	162
Shreveport	1	------	0	0	2	1	0	3	0	0	21
Oklahoma:											
Oklahoma City	1	12	2	0	6	4	0	0	0	0	49
Texas:											
Dallas	11	------	0	0	4	9	0	2	0	1	53
Fort Worth	17	------	0	1	6	4		3	1	1	45
Galveston	1	------	0	0	0	0	0	0	0	0	12
Houston	19	------	0	0	4	1	0	2	0	0	80
San Antonio	7	------	2	0	4	1	0	9	0	0	64
Montana:											
Billings	0	------	0	1	0	9	0	1	0	0	6
Great Falls	0	------	0	1	1	0	0	0	0	0	9
Helena	0	------	0	0	1	1	0	0	0	0	1
Missoula	0	------	0	1	2	34	1	0	0	0	10
Idaho:											
Boise	0	------	0	0	1	4	0	1	0	0	9
Colorado:											
Colorado Springs	0	------	0	0	0	7	0	0	0	7	7
Denver	10	------	1	4	4	16	1	2	1	2	95
Pueblo	0	------	0	0	0	24	0	0	0	0	14
New Mexico:											
Albuquerque	0	------	0	0	3	1	0	1	1	0	11
Utah:											
Salt Lake City	0	------	1	0	6	52	0	1	0	10	37
Nevada:											
Reno	------	------	------	------	------	------	------	------	------	------	------
Washington:											
Seattle	0	------	0	0	9	20	0	6	0	1	80
Spokane	0	------	0	7	4	1	1	1	0	1	34
Tacoma	0	------	0	0	6	1	0	0	0	2	32
Oregon:											
Portland	0	1	0	36	8	18	0	3	0	3	88
Salem	0	1	------	1	------	1	0	------	0	0	------
California:											
Los Angeles	13	25	1	31	18	49	0	16	0	21	319
Sacramento	1	------	0	1	2	20	0	2	0	1	31
San Francisco	2	5	3	25	10	17	0	9	0	27	189

City reports for week ended Nov. 23, 1935—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Maine:			
Portland	0	1	0
Massachusetts:			
Boston	0	1	2
Fall River	0	0	1
Worcester	1	1	0
New York:			
Buffalo	1	0	0
New York	5	2	6
Rochester	1	0	0
Syracuse	0	0	2
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	1	1	1
Pittsburgh	2	0	0
Ohio:			
Cincinnati	0	1	0
Columbus	0	0	1
Illinois:			
Chicago	1	1	1
Moline	0	0	1
Springfield	1	1	0
Michigan:			
Detroit	2	0	1
Minnesota:			
Minneapolis	1	1	0
St. Paul	0	0	1
Missouri:			
St. Louis	0	0	1
South Dakota:			
Aberdeen	0	1	0
Nebraska:			
Omaha	1	0	0
Maryland:			
Baltimore	3	2	1
District of Columbia:			
Washington	2	1	1
Georgia:			
Atlanta	1	0	0
Kentucky:			
Louisville	1	0	0
Tennessee:			
Knoxville	1	0	0
Memphis	0	0	1
Nashville	1	1	0
Louisiana:			
New Orleans	4	1	0
Oklahoma:			
Oklahoma City	1	0	0
Texas:			
Dallas	1	1	0
San Antonio	0	0	1
New Mexico:			
Albuquerque	2	0	1
Oregon:			
Portland	0	0	2
California:			
Los Angeles	0	0	5
San Francisco	1	0	1

Epidemic encephalitis.—Cases: Philadelphia, 1; Chicago, 1; San Francisco, 1.
Pellagra.—Cases. Charleston, S C, 1; Atlanta, 1; Miami, 1, Louisville, 1; Mobile, 1.
Rabies-in-man.—Florence, S C., 1 death.
Typhus fever.—Cases. Atlanta, 1; Savannah, 2; Montgomery, 2; Houston, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended November 16, 1935.—During the 2 weeks ended November 16, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis					4					4
Chicken pox		14	14	295	1,011	179	103	38	197	1,851
Diphtheria	2	4	14	51	17	8	2	5		103
Dysentery					2					2
Erysipelas				8	3	1		1	3	16
Influenza		4			30	1			14	49
Lethargic encephalitis					1					1
Measles	4	4	131	338	907	20	177	60	256	1,897
Mumps		37			415	125	1 147	2	101	1,827
Paratyphoid fever					2					2
Pneumonia					11		2		15	28
Poliomyelitis			1	1	7		4	3	1	17
Scarlet fever		17	11	320	491	79	27	39	46	1,030
Smallpox							1			1
Tuberculosis	2	32	21	115	87	17	22	2	27	325
Typhoid fever		2	5	48	5	5	1			66
Undulant fever					5		3			8
Whooping cough		37	40	163	440	33	70	33	23	839

DENMARK

Communicable diseases—July September 1935.—During the months of July, August, and September 1935 cases of certain communicable diseases were reported in Denmark as follows:

Disease	July	August	September	Disease	July	August	September
Cerebrospinal meningitis	9	4	2	Paratyphoid fever	7	21	16
Chicken pox	13	5	20	Poliomyelitis	15	44	82
Diphtheria and croup	176	178	272	Puerperal fever	10	14	15
Epidemic encephalitis	5	4	2	Scabies	405	569	834
Erysipelas	205	262	335	Scarlet fever	412	606	815
German measles	11	14	18	Syphilis	49	59	70
Gonorrhea	825	1,120	933	Tetanus, neonatorum	7	2	4
Influenza	1,976	2,032	3,021	Tetanus, traumatic	2	1	2
Malaria	4	3	11	Typhoid fever	5	40	9
Measles	5,656	1,678	852	Undulant fever (Bact abort Bang)	35	34	48
Mumps	285	216	210	Whooping cough	2,081	2,412	2,471
Paradysentery	66	172	120				

LATVIA

Communicable diseases—July–September 1935.—During the months of July, August, and September 1935, cases of certain communicable diseases were reported in Latvia as follows:

Disease	July	August	September	Disease	July	August	September
Anthrax			1	Paratyphoid fever	22	10	9
Botulism		1		Poliomyelitis	1	2	10
Cerebrospinal meningitis	5	11	6	Puerperal septicemia	3	8	5
Diphtheria	67	48	33	Scarlet fever	165	100	151
Dysentery		1		Tetanus	5	3	2
Epidemic encephalitis		1	1	Trachoma	32	22	33
Erysipelas	31	22	21	Tuberculosis	412	411	259
Influenza	199	133	60	Typhoid fever	62	82	71
Leprosy	2			Typhus fever	1		
Measles	74	51	18	Undulant fever	1		
Mumps	17	7	3	Whooping cough	55	33	23

PUERTO RICO

Vital statistics—1934—Comparative.—Following are vital statistics for Puerto Rico for the years 1934 and 1933:

	1934	1933		1934	1933
Births per 1,000 population	39.8	38.0	Deaths per 100,000 population, from—Continued.		
Deaths, all causes, per 1,000 population	19.2	22.6	Diarrhea and enteritis (2 years and over)	139.4	204.0
Deaths under 1 year of age per 1,000 live births	113		Heart diseases	104.2	116.2
Deaths per 100,000 population, from.			Influenza	58.1	18.0
Cancer	47.1	45.9	Malaria	152.8	200.7
Cerebrospinal meningitis	5.3	4.9	Nephritis (acute and chronic)	130.8	149.6
Diarrhea and enteritis (under 2 years)	223.4	259.0	Tuberculosis	308.3	337.2
			Whooping cough	22.5	9.8

YUGOSLAVIA

Communicable diseases—October 1935.—During the month of October 1935, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	97	5	Poliomyelitis	4	
Cerebrospinal meningitis	8	2	Scarlet fever	884	8
Diphtheria and croup	952	67	Sepsis	13	5
Dysentery	892	75	Tetanus	51	22
Erysipelas	331	10	Typhoid fever	787	67
Measles	238	1	Typhus fever	6	
Paratyphoid fever	41				

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for November 29, 1935, pages 1701–1717. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued December 27, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Ceylon—Southern Province—Balapitiya.—On November 22, 1935, 1 death from plague was reported near Balapitiya, Southern Province, Ceylon.

Ecuador—Guayaquil.—During the period August 6 to November 24, 1935, 84 cases of plague with 29 deaths were reported at Guayaquil, Ecuador.

Hawaii Territory—Hawaii Island—Hamakua District—Hamakua Mill.—A rat captured November 29, 1935, at Hamakua Mill, Hamakua District, Island of Hawaii, Hawaii Territory, has been proved positive for plague.

Typhus Fever

Chile—Santiago.—According to a report dated November 7, 1935, there were 203 cases of typhus fever in hospitals in Santiago, Chile. These include 12 cases admitted on November 6, 1935. The disease is said to be increasing to a considerable extent.

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UNITED STATES TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES
PUBLIC HEALTH SERVICE

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg Gen R C WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS is published primarily for distribution, in accordance with the law, to health officers, members of boards or departments of health, and other persons directly or indirectly engaged in public health work. Articles of special interest are issued as reprints or as supplements, in which forms they are made available for more economical and general distribution.

Requests for and communications regarding the PUBLIC HEALTH REPORTS, reprints, or supplements should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C. Subscribers should remit direct to the Superintendent of Documents, Washington, D. C.

Librarians and others should preserve their copies for binding, as the Public Health Service is unable to supply the general demand for bound copies. Indexes will be supplied upon request.

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PUBLIC HEALTH REPORTS

VOL. 50 DECEMBER 20, 1935 NO. 51

CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

November 3–30, 1935

Meningococcus meningitis.—The number of cases of meningococcus meningitis reported for the 4 weeks ended November 30 was 288, as compared with 129, 157, and 221 for the corresponding period in the years 1934, 1933, and 1932, respectively. Each section of the country has contributed to the high incidence of this disease which has prevailed throughout the current year. For the current period the Mountain and Pacific and South Central regions each reported almost three times as many cases as were reported for this period last year, the South Atlantic and North Central areas more than twice last year's figures, and in the New England and Middle Atlantic regions an excess over last year of approximately 80 percent was reported.

The disease was slightly more prevalent during the current period than in the preceding 4-week period (273 cases) and may be expected to continue to rise to the seasonal peak, which is usually reached in March or April. The lowest point in the seasonal incidence usually comes in October or November, but this year the low point came in September with a rise in October and November. The rise was not confined to any particular section of the country; increases were reported from each geographic area, except the New England and Middle Atlantic, where the disease appeared still to be on the decline. For the 4 weeks ended November 30 the incidence was practically on a level with that of the preceding 4-week period in each region except the South Central and Mountain and Pacific, where the number of cases continued to increase.

Poliomyelitis.—Further decline in the incidence of poliomyelitis continued through the month of November. For the current period there were 509 cases reported as compared with 1,039 for the preceding 4-week period. As compared with immediately preceding years, the incidence remained on a relatively high level; for the corresponding

[1] From the Office of Statistical Investigations, U. S. Public Health Service. These summaries include only the 8 important communicable diseases for which the Public Health Service receives weekly telegraphic reports from the State health officers. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports.

period in 1934, 1933, and 1932 the numbers of cases totaled 332, 268, and 177, respectively. In 1931 and 1930, when epidemics prevailed mostly in the East, as has the recent one, the incidence had declined considerably, but large numbers of cases were still being reported. The numbers of cases reported for the period corresponding to the current one in those years were 625 and 866, respectively.

Each geographic area reported fewer cases during the current period than during the preceding 4 weeks, but the number in the New England and Middle Atlantic group (241 cases) was more than 8 times last year's figure for the same period, and in the South Atlantic region the number (51) was almost 3 times that reported last year. A 10 percent increase was reported from the East North Central section and more than 50 percent increase from the South Central States. In the West North Central and Mountain and Pacific regions the disease was less prevalent than at this time last year.

Smallpox.—During the 4 weeks under report, 928 cases of smallpox were reported. Of the total number, Montana reported 392, Nebraska 181, Washington 132, Wisconsin 46, Kansas 33, and South Dakota 31. A special report from Montana dated November 20 stated that since September 15, 1935, there had been 261 cases of smallpox in Valley County. Most of the cases were in or near Glasgow, and the disease was of mild type.

For the country as a whole the current incidence was the highest since 1931. The excess has not been general, however, but has been confined mostly to certain States in the Mountain, Pacific, and West North Central regions. The number of cases reported from the East North Central and South Central sections was the lowest in recent years; only a few cases occurred in the South Atlantic area, and no cases were reported in the New England and Middle Atlantic States.

Scarlet fever.—The incidence of scarlet fever (19,731 cases) for the current 4-week period was slightly above that for the corresponding period in each of the three preceding years. Significant increases over last year were reported from the North Central, Mountain, and Pacific regions. In the New England and Middle Atlantic areas the incidence was about on a level with that of last year, and from other sections considerable decreases were reported.

Measles.—The usual seasonal increase of measles continued through the 4 weeks ended November 30, with 6,876 reported, as compared with 10,557, 8,598, and 8,957 for the corresponding period in the years 1933, 1932, and 1931, respectively. The disease was unusually prevalent in 1934, when approximately 17,000 cases were reported for this period. In all sections except the Mountain and Pacific the current incidence was the lowest for this period in recent years. In those regions the disease stood at last year's level.

Diphtheria.—The diphtheria incidence was the lowest in recent years, with 5,162 cases reported for the current period. The West North Central and South Central regions reported slight increases over last year's figures for the corresponding period. In other sections the number of cases either approximated that of last year or fell slightly below. For this period in the years 1934, 1933, and 1932 the numbers of cases were 5,239, 7,442, and 6,770, respectively.

Typhoid fever.—The incidence of typhoid fever declined further during the current 4-week period. The number of cases (1,061) was the lowest for the corresponding period in the 7 years for which data are available. An increase over last year's figure of approximately 20 percent was reported from the South Atlantic States, but all other sections reported very significant decreases. Several States in the South Atlantic group reported excesses over last year, but the greatest increases were reported from Maryland (62 cases), North Carolina (31 cases), and Virginia (58 cases). More than two-thirds of the total cases (228) in that area occurred in those three States.

Influenza.—During the current 4-week period the reported cases of influenza totaled 3,559. This number compared very favorably with the numbers reported for the corresponding period in preceding nonepidemic years. In 1932 a very sharp rise in influenza occurred in the South and West during this period, when 24,678 cases were reported. The disease was less prevalent than last year in all sections except the North Central, Mountain, and Pacific, in which slight increases were reported.

Mortality, all causes.—The mortality rate for large cities, as reported by the Bureau of the Census, averaged 11.0 per 1,000 inhabitants (annual basis) for the 4-week period ended November 30. Last year the average rate for this period was 11.1, and in each of the 2 preceding years it was 11.2.

STATE AND INSULAR HEALTH AUTHORITIES, 1935

DIRECTORY, WITH DATA AS TO APPROPRIATIONS AND PUBLICATIONS

Directories of the State and insular health authorities of the United States for each year from 1912 to 1934, except 1932, have been published in the PUBLIC HEALTH REPORTS and reprinted as separates [1] for the information of health officers and others interested in public-health activities. The present directory (1935), like those previously issued, has been compiled from information furnished by the respective State and insular health officers, and includes data as to appropriations and publications.

[1] Reprints Nos. 83, 123, 190, 286, 344, 405, 488, 544, 605, 706, 775, 871, 949, 1043, 1106, 1188, 1254, 1334, 1428, 1522, 1604, and 1675, from the Public Health Reports.

Where an officer has been reported to be a "whole-time" health officer, that fact is indicated by an asterisk (*). For this purpose a "whole-time" health officer is defined as "one who does not engage in the practice of medicine or in any other business, but devotes all of his time to official duties."

ALABAMA DEPARTMENT OF PUBLIC HEALTH

Board of censors of the medical association of the State of Alabama, acting as a State committee of public health:
Bibb Graves, Governor, ex officio chairman, Montgomery.
E. V. Caldwell, M. D., chairman, Huntsville.
M. Y. Dabney, M. D., Birmingham.
M. S. Davie, M. D., Dothan.
S. A. Gordon, M. D., Marion.
T. Brannon Hubbard, M. D., Montgomery.
D. T. McCall, M. D., Mobile.
Lloyd Noland, M. S., Fairfield.
W. D. Partlow, M. D., Tuscaloosa.
J. D. Perdue, M. D., Mobile.
Fred W. Wilkerson, M. D., Montgomery.
Bureau of administration:
Executive health officer:
*J. N. Baker, M. D., State health officer, Montgomery.
*Bessie A. Tucker, secretary to State health officer, Montgomery.
*G. S. Savage, financial secretary, Montgomery.
Bureau of county organization:
*Douglas L. Cannon, M. D., director, Montgomery.
*J. S. Hough, M. D., field adviser in county organization, Montgomery.
*A. M. Shelamer, M. D., field adviser in county organization, Montgomery.
Bureau of communicable disease control:
*D. G. Gill, M. D., D. P. H., director, Montgomery.
*W. H. Y. Smith, M. D., C. P. H., assistant director, Montgomery.
*R. A. Brown, M. D., clinician, Montgomery.
*K. N. Joseph, M. D., clinician, Montgomery.
*Myrtle Martin, R. N., Montgomery.
*Mary S. Pugh, R. N., Montgomery.
Bureau of hygiene and nursing:
*B. F. Austin, M. D., director, Montgomery.
*Frances C. Montgomery, R. N., Montgomery.
*Margaret Murphy, R. N., Montgomery.
*Mary Lee Morris, R. N., Montgomery.
*Velma Owens, R. N., Montgomery.
Bureau of laboratories:
*James G. McAlpine, Ph.D., general director, Montgomery.
Anniston branch:
*Mary Walker, Anniston.
Birmingham branch:
*George A. Denison, M. D., Birmingham.
Dothan branch:
*Nellie K. Whitfield, Dothan.
Huntsville branch:
*Mrs. Buford Gatlin, Huntsville.
Mobile branch:
*C. H. Waite, Mobile.
Tennessee Valley branch:
*C. C. Johnson, Decatur.
Tuscaloosa branch:
*Cannie Campbell, Tuscaloosa.
Selma branch:
*Cooper Brougher, Selma.
Bureau of sanitation:
*G. H. Hazelhurst, C. E., M. C. E., director, Montgomery.
Assistant engineers:
*H. G. Menke, B. C. E., Montgomery.
*T. H. Milford, Montgomery.
*Frank B. Wood, Montgomery.
Division of inspection:
*C. A. Abele, Ch. E., director, Montgomery.
*H. J. Thrasher, Huntsville.
*F. H. Downs, Montgomery.
Bureau of vital statistics:
*Leonard V. Phelps, director and registrar, Montgomery.
Appropriation for; fiscal year ending September 30, 1935:
Annual appropriation for all health work, including county organization, $400,000. (Subject to proration on basis of available revenue coming into the general fund. This makes amount indeterminate.)

ALASKA DEPARTMENT OF HEALTH

Executive health officer:
Walter W. Council, M. D., commissioner of health, Juneau.
Assistant commissioners of health:
A. D. Haverstock, M. D., Seward.
Rex F. Swartz, M. D., Nome.
Floyd B. Gillespie, M. D., Fairbanks.
Appropriation for 1935-37, $15,200.

ARIZONA STATE BOARD OF HEALTH

State board of health:
B. B. Moeur, Governor, president, Phoenix.
John L. Sullivan, vice president, Phoenix.
George C. Truman, superintendent, secretary, Phoenix.
F. E. Doucette, secretary, business manager, Phoenix.
Fred Ruppelius, statistician, Phoenix.
Ralph Thomas, assistant secretary and auditor, Phoenix.
Executive health officer:
*George C. Truman, M. D., State superintendent of health, Phoenix.
State laboratory:
*Jane Rider, director, Tucson.
*Marion Stroud, bacteriologist, Phoenix.
*W. B. West, assistant bacteriologist, Tucson.
Epidemiologist:
*George A. Hays, M. D.
Sanitary engineer:
*F. C. Roberts.
County health units:
*A. N. Crain, M. D., medical director, Maricopa County, Phoenix.
*R. B. Durfee, M. D., medical director, Cochise County, Bisbee.
*Lewis H. Howard, M. D., medical director, Pima County, Tucson.
*Geoffrey Morris, M. D., medical director, Gila County, Globe.

Appropriations, year ending June 30, 1936:

Board of health	$15,705
Child hygiene	19,700
State laboratory	9,140

ARKANSAS STATE BOARD OF HEALTH

Board of health:
Thomas Wilson, M. D., president, Wynne.
J. G. Gladden, M. D., Harrison.
E. D. McKnight, M. D., Brinkley.
W. F. Smith, M. D., Little Rock.
L. D. Duncan, M. D., Waldron.
W. H. Hodges, M. D., Malvern.
F. O. Mahony, M. D., El Dorado.
Executive health officer:
*Wm. B. Grayson, M. D., State health officer, Little Rock.
Bureau of vital statistics:
*Mrs. J. B. Collie, statistician, Little Rock.
Hygienic laboratory:
*H. V. Stewart, associate director, Little Rock.

Bureau of sanitation and malaria control:
*M. Z. Bair, B. Sc. E., chief sanitary engineer, Little Rock.
Bureau of child hygiene:

County health units:
*Gordon Hastings, M. D., director, Little Rock.
Appropriations for biennial period ending June 30, 1937:

Executive department, salaries and miscellaneous		$19,800
Bureau of vital statistics	$29,800	
Registrars' fees	30,000	
		59,800
Bureau of sanitation		19,000
Hygienic laboratory		18,600
County health units and rural sanitation		160,000

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

Board of public health:
Howard Morrow, M. D., president, San Francisco.
Edward M. Pallette, M. D., vice president, Los Angeles.
Walter M. Dickie, M. D., director of public health, Sacramento.
Gifford L. Sobey, M. D., Paso Robles.
William R. P. Clark, M. D., San Francisco.
George H. Kress, M. D., Los Angeles.
Junius B. Harris, M. D., Sacramento.
Department of public health:
*Walter M. Dickie, M. D., director of public health, Sacramento.
District health officer:
*Gavin Telfer, M. D., southern division.
Bureau of epidemiology:
*Harlin L. Wynns, M. D., chief, San Francisco.
*Ida May Stevens, supervising morbidity statistician.
Bureau of sanitary inspections:
*Edward T. Ross, chief, Sacramento.
Bureau of vital statistics:
*Guy P. Jones, chief, Sacramento.
Bureau of registration nurses:
*Helen F. Hansen, chief, Sacramento.
Bureau of tuberculosis:
*Edyth L. M. Tate-Thompson, chief, Sacramento.
Bureau of food and drug inspections:
*M. P. Duffy, chief.
Bureau of laboratories:
*W. H. Kellogg, M. D., chief, Berkeley.
Bureau of sanitary engineering:
*C. G. Gillespie, C. E., chief, Berkeley.
Bureau of child hygiene:
*Ellen S. Stadtmuller, M. D., chief, San Francisco.
Appropriations, available July 1, 1935, for biennial period ending June 30, 1937 (87th and 88th years):

Administration:	
For support, department of public health	$427,320
Bureau of cannery inspection:	
For support (payable from cannery-inspection funds)	181,170
Bureau of registration of nurses:	
For support (payable from nurses registration funds)	46,700
Tuberculosis bureau:	
Allotment for support, included in item "for support, department of public health", $20,230.	
For subsidies	1,305,000
Total	1,960,190

Other sources of revenue:
Fees for registration of nurses, $10 each. (Fees for California graduate nurses, $5 only.)
Renewal of registration certificates, $1 each per year.
Licensing of cold-storage warehouses, rated according to capacity, for credit to general fund.
Fines for violation of pure food and drugs act, for credit to general fund.

Other sources of revenue—Continued.
Fees for licenses, $50 each, and contributions, for credit to bureau of cannery inspection.
Fees for searches and certified copies of records, for credit to general fund.
Fees for inspection and registration of aviaries, $5 each.
Fees for inspection of clinics and dispensaries, $5 each.
Publications issued by health department:
Biennial report.
Weekly bulletin.

COLORADO DIVISION OF PUBLIC HEALTH

State board of health:
Paul J. Connor, M. D., president, Denver.
William P. Gasser, M. D., vice president, Loveland.
R. L. Cleere, M. D., secretary and executive officer, Denver.
G. W. Bumpus, D. O., Denver.
Ura O. Musick, Colorado Springs.
N. M. Burnett, M. D., Lamar.
Ben Beshoar, M. D., Trinidad.
C. A. Davlin, M. D., Alamosa.
Com. Rudolph Albi, M. D., Denver.
Division of administration:
M. F. Haralson, M. D., acting secretary and executive officer, Denver, vice, **R. L. Cleere, M. D.**, absent on leave. Division of epidemiology:
*R. L. Cleere, M. D., acting epidemiologist.
Division of social hygiene:
*R. L. Cleere, M. D., director.
Division of plumbing:
*Irving A. Fuller, chief inspector.
Division of bacteriology:
*W. C. Mitchell, M. D., bacteriologist.
Division of sanitary engineering:
*Benjamin V. Howe, sanitary engineer.
Division of vital statistics:
*R. L. Cleere, M. D., State registrar.
Division of food and drugs:
*R. L. Cleere, M. D., acting commissioner.
Appropriations for fiscal years ending June 30, 1936 and 1937:

	1936	1937
Salaries	$31,330	$31,390
Laboratory equipment and supplies	1,000	1,000
Printing	1,900	1,900
Traveling expenses	4,500	4,500
Venereal disease (no appropriation)		
Incidental expenses	1,100	1,100
Total	39,830	39,890

CONNECTICUT DEPARTMENT OF HEALTH

Public health council:
C.-E. A. Winslow, D. P. H.
James W. Knox.
James A. Newlands.
David R. Lyman, M. D.
Robert A. Cairns, C. E.
Joseph M. Ganey, M. D.
Executive health officer:
*Stanley H. Osborn, M. D., C. P. H., commissioner of health, Hartford.
Bureau of preventable diseases:
*Millard Knowlton, M. D., C. P. H., director.
Bureau of vital statistics:
*William C. Welling, director.
Bureau of public-health nursing:
*Elizabeth S. Taylor, R. N., director.
Bureau of child hygiene:
*A. Elizabeth Ingraham, M. D.
Bureau of public-health instruction:
*Elizabeth C. Nickerson, C. P. H.
Bureau of laboratories:
*F. Lee Mickle, director.

Bureau of sanitary engineering:
*Warren J. Scott, director.
Bureau of occupational diseases:
*Albert S. Gray, M. D., director.
Bureau of venereal diseases:
*Henry P. Talbot, M. D., director.
Bureau of mental hygiene:
*James M. Cunningham, M. D., director.
Division of mouth hygiene:
E. Harvey Richmond, D. D. S., chief.
Division of medical registration:
*Ruth H. Monroe, chief.
Appropriation for fiscal period ending June 30, 1937 (2 years), $609,029.
Publications issued by health department:
Weekly bulletin.
Monthly bulletin.
Annual vital-statistics report.
Annual report of State department of health.
Miscellaneous pamphlets.

DELAWARE STATE BOARD OF HEALTH

State board of health:
R. E. Ellegood, M. D., president, Wilmington.
Mrs. F. G. Tillman, vice president, Wilmington.
Stanley Worden, M. D., secretary, Dover.
Mrs. Charles Warner, Wilmington.
Margaret I. Handy, M. D., Wilmington.
William P. Orr, Lewes.
Charles R. Jefferis, Jr., D. D. S., Wilmington.
Mrs. Arthur Brewington, Delmar.
Executive health officer:
*Arthur C. Jost, M. D., C. M., Dover.
Director of laboratory:
*Rowland D. Herdman, Dover.
Director of child hygiene:
*Cleland A. Sargent, M. D., C. P. H., Dover.
Sanitary engineer:
*Richard C. Beckett, Dover.
Superintendent of Brandywine Sanatorium:
*Lawrence D. Phillips, M. D., Marshallton.
Superintendent of Edgewood Sanatorium:
*Elizabeth Van Vranken, R. N., Marshallton.
State oral hygienist:
*Miss M. E. Wagner, R. D. H., Dover.
County unit officers:
*J. R. Downes, M. D., New Castle County.
*E. F. Smith, M. D., Kent County.
*F. I. Hudson, M. D., Sussex County.

Appropriations for each fiscal year ending June 30, 1936 and 1937:

General administration	$84, 150
Hygienic laboratory	10, 425
Edgewood Sanitorium for colored tuberculous patients	27, 400
Brandywine Sanatorium for white tuberculous patients	121, 200
Dental hygiene	12, 000
Total	255, 175
Special construction at Brandywine Sanatorium	150, 000

Publications:
Annual report.
Bulletins on health subjects.
Weekly circular.

DISTRICT OF COLUMBIA HEALTH DEPARTMENT

Executive health officer:
*George C. Ruhland, M. D., health officer, Washington.
Assistant health officer:

——————— ———————

Chief clerk and deputy health officer:
*Arthur G. Cole, Washington.
Chief, Bureau of Preventable Diseases, and director, bacteriological laboratory:
*James G. Cumming, M. D., Washington.
Bacteriologist:
*John E. Noble, Washington.
Serologist:
*Jesse P. Porch, D. V. M., Washington.
Chemist:
*John B. Reed, Washington.
Chief sanitary inspector:
*J. Frank Butts, Washington.
Director child-hygiene service:
*Hugh J. Davis, M. D., Washington.
Chief food inspector:
*Reid R. Ashworth, D. V. S., Washington.
Chief medical and sanitary inspector of schools:
*Joseph A. Murphy, M. D., Washington.
Chief, bureau of vital statistics:
*Joseph B. Irvine, Washington.
Poundmaster:
*Walter R. Smith, Washington.

Appropriations for the fiscal year ending June 30, 1936:

Salaries	$178, 500
Prevention of communicable diseases	33, 500
Milk and food inspection and regulation	6, 000
Dispensary service, including treatment of tuberculosis and venereal diseases	52, 000
Maintaining a child-hygienic service	50, 000
Hygiene and sanitation, public schools	102, 500
Laboratory service	1, 800
Miscellaneous	1, 900
Total	426, 200

Publications issued by health department:
Weekly report by health department.
Annual report of health officer.
Monthly statement of average grade of milk sold.

FLORIDA STATE BOARD OF HEALTH

Board of health:
N. A. Baltzell, M. D., president, Marianna.
R. L. Hughes, M. D., Bartow.
Harry Dash Johnson, M. D., Daytona Beach.
Executive health officer:
*W. A. McPhaul, M. D., State health officer, Jacksonville.
Diagnostic laboratories:
*Paul Eaton, M. D., D. P. H., director, Jacksonville.
Bureau of vital statistics:
*Stewart G. Thompson, D. P. H., director, Jacksonville.
Bureau of communicable diseases:
*F. A. Brink, M. D., director, Jacksonsville.
Bureau of sanitary engineering:
*T. S. Kennedy, M. D., director, Jacksonville.
Division of public health nursing:
*Ruth E. Mettinger, R. N., director.
Appropriation for health department:
One-half mill tax levied upon the assessable property of the State for the year ending June 30. 1936, and the same for the year ending June 30, 1937, but expenditures thereunder limited to $225,000 for each fiscal year.
Publications issued by health department:
Pamphlets covering all phases of public health.
Public health information disseminated through the weekly and daily papers of the State.
Florida health notes.
Annual reports.

GEORGIA DEPARTMENT OF PUBLIC HEALTH

State Board of Health:
Dr. Cleveland Thompson, Millen, First District.
Dr. C. K. Sharp, Arlington, Second District.
Mr. R. C. Ellis, Americus, Third District.
Dr. M. M. Head, Zebulon, Fourth District.
Mr. R. F. Maddox, Atlanta, Fifth District.
Dr. A. R. Rozar, Macon, Sixth District.
Dr. M. M. McCord, Rome, Seventh District.
Dr. H. W. Clements, Adel, Eighth District.
Dr. L. C. Allen, Hoschton, Ninth District.
Dr. W. A. Mulherin, Augusta, Tenth District.
Dr. T. C. Marshall, State at large, Atlanta.
Dr. Claude Rountree, State at large, Thomasville.
Dr. J. G. Williams, D. D. S., State at large, Atlanta.
Dr. Paul McGee, D. D. S., State at large, Waycross.

Executive health officer:
*T. F. Abercrombie. M. D., director, Atlanta.
*J. P. Bowdoin, M. D., assistant director.
Division of venereal-disease control:
*Joe P. Bowdoin, M. D., chief, Atlanta.
Division of county health work:
*Guy G. Lunsford, M. D., chief, Atlanta.
Division of laboratories:
*T. F. Sellers, M. D., chief, Atlanta.
Division of sanitary engineering:
*L. M. Clarkson, chief, Atlanta.
Division of tuberculosis control:
*H. C. Schenck, M. D., chief, Atlanta.
Bureau of vital statistics:
*Butler Toombs, chief, Atlanta.
Division of child hygiene:
*Joe P. Bowdoin, M. D., chief, Atlanta.
Division of epidemiology:
*Daniel L Seckinger, M. D., chief, Atlanta.
Division of accounting and purchasing:
*C. L. Tinsley, chief, Atlanta.

Appropriations for the fiscal years ending Dec. 31, 1934 and 1935:

General appropriation	$125,000
Scaled proportionately to State income. Only 80 percent, or $100,000, will be paid on 1935 appropriation.	

TERRITORY OF HAWAII BOARD OF HEALTH

Board of health:
F. E. Trotter, M. D., president and executive health officer, Honolulu.
W. B. Pittman, attorney general, Honolulu.
Guy C. Milnor, M. D., Honolulu.
Donald S. Bowman, Honolulu.
Edwin Lewis, Honolulu.
Clarence A. MacGregor, Honolulu.
Frank H. Locey, Honolulu.
Executive health officer:
*F. E. Trotter, M. D.; president of the board of health, Honolulu.
Secretary:
*Mae R. Weir, Honolulu.
Bureau of sanitation:
*S. W. Tay, director, Honolulu.
*Fred Schultz, division supervisor, Honolulu.
*Clifford H. Bowman, division supervisor, island of Hawaii, Hilo.
*R. C. Lane, division supervisor, island of Maui, Wailuku.
*A. P. Christian, division supervisor, island of Kauai, Lihue.
*Robert B. Pauole, sanitary inspector, Leeward Molokai, Kaunakakai.
Health officer, island of Hawaii:
*Joseph S. Caceres, Hilo.
Bureau of vital statistics:
*M. H. Lemon, registrar general, Honolulu.
Laboratory technician:
*Le Beryl Alexander, M. D., Honolulu.
Tuberculosis bureau:
*C. Alvin Dougan, M. D., director.
Bureau of public-health nursing:
*Mabel L. Smyth, R. N., director, Honolulu.
Bureau of pure food and drugs:
*M. B. Bairos, director, Honolulu.
Territorial hospital:
*A. B. Kroll, superintendent, Kaneohe, Oahu.
*A. B. Eckerdt, M. D., medical director, Kaneohe, Oahu.
Bureau of communicable diseases:
Frederick K. Lam, M. D., director, Honolulu.
Health officer, island of Kauai:
A. M. Ecklund, M. D., Koloa.
Bureau of maternal and infant hygiene and child welfare:
Frederick K. Lam, M. D., director, Honolulu.
Bacteriologist, island of Hawaii:
*Fred S. Paine, Hilo.
Bacteriologist, island ofMaui:
Haliburton McCoy, M. D., Puunene.
Bacteriologist, island of Kauai:
A. M. Ecklund, M. D., Koloa.

Appropriations, biennium 1935–37:

Board of health—general administration:		
Personal services		$49,316.40
Other current expenses		6,800.00
Equipment		300.00
Bureau of vital statistics:		
Personal services		19,681.20
Other current expenses		5,000.00
Equipment		350.00
Tuberculosis bureau:		
Personal services		15,321.60
Other current expenses		9,100.00
Equipment		700.00
Tuberculosis—private hospitals:		
Contributions to Leahi Home		172,000.00
Contributions to Kula Sanitarium		96,000.00
Contributions to Samuel Mahelona Memorial Hospital		66,000.00
Contributions to Puumaile Home		120,000.00
Bureau of public-health nursing:		
Personal services		154,388.40
Other current expenses		35,472.00
Equipment:		
Motor vehicles	$24,540	
Other equipment	2,732	
		27,272.00
Plague campaign:		
Personal services		61,469.76
Other current expenses		24,000.00
Equipment:		
Motor vehicles	$2,337	
Other equipment	325	
		2,662.00
Structures and improvements to land		350.00
Bureau of communicable diseases:		
Personal services		34,628.40
Other current expenses		20,000.00
Equipment:		
Motor vehicles	$1,558	
Other equipment	875	
		2,433.00
Bureau of maternal and infant hygiene:		
Personal services		7,383.60
Other current expenses		6,550.00
Bureau of pure food and drugs:		
Personal services		14,910.00
Other current expenses		1,122.00
Equipment		135.00
Boards of examiners:		
Personal services		226.80
Other current expenses		346.00
Bureau of sanitation:		
Personal services		114,682.32
Other current expenses		18,838.00
Equipment:		
Motor vehicles	$3,987	
Other equipment	465	
		4,452.00
Government physicians:		
Personal services		77,573.76
Territorial hospital:		
Personal services		409,021.44
Other current expenses		247,165.00
Equipment:		
Motor vehicles	$5,000	
Other equipment	14,027	
		19,027.00
Structures and improvements to land:		
Improvements to land and buildings	$5,000	
Highways and trails	8,750	
Improvements to land	1,500	
		15,250.00
Total		1,859,927.68

IDAHO DEPARTMENT OF PUBLIC WELFARE

Department of public welfare:
*Lewis Williams, commissioner.
*W. V. Leonard, B. S. M. E., State chemist and sanitary engineer
*Lawrence J. Peterson, bacteriologist.
*A. W. Klotz, assistant chemist.
*James M. Welsh, dairy, food, drug, hotel, and sanitary inspector
*C. H. Watson, dairy, food, drug, hotel, and sanitary inspector.
Executive health officer:
***Lewis Williams**, commissioner of public welfare, Boise.
Bureau of child hygiene:
*Mrs. Deborah H. Worthington, director, Boise.

Appropriations for biennial period ending Dec. 31, 1936:

Personal services	$44,560
Other expenses	17,600
Venereal-disease control	2,000
Vaccines and antitoxins	4,000
Child hygiene	3,085
Total	71,245

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Board of public-health advisors:
Clifford U. Collins, M. D., chairman.
Herman N. Bundesen, M D.
Charles Edw. Humiston, M. D.
Maurice Rubel, M. D.
———— ————.
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Executive health officer:
***Frank J. Jirka, M. D.**, director of public health, Springfield.
Assistant director of public health:
*A. C. Baxter, M D.
Division of sanitary engineering:
*Clarence W. Klasson, C. E., acting chief sanitary engineer.
Division of communicable diseases:
*J. J. McShane, M. D., D P. H., chief.
Division of child hygiene and public-health nursing:
*Grace S. Wightman, M. D., chief.
Division of tuberculosis:
*A. C. Baxter, M. D., acting chief.
Division of laboratories:
*Howard J. Shaughnessy, Ph. D., chief.
Division of vital statistics:
*Sheldon L. Howard, registrar.
Division of public-health instruction:
*Baxter K. Richardson, chief.
Division of hotel and lodging-house inspection:
*William P. Haberkorn, superintendent.

Appropriations for biennial period ending June 30, 1937:

Salaries	$707,000
Salaries State officers	27,800
Office expenses	23,176
Traveling expenses	128,661
Operation	261,116
Repairs and equipment	25,875
Contingent	65,000
Printing	50,000
Postage	25,000
Sanitary water board law	30,000
Rabies	12,000
Emergency	25,000
Total	1,380,628

Publications issued by health department:
Illinois Health Messenger (bimonthly).
Weekly press bulletin.
Educational health circulars.

INDIANA DEPARTMENT OF COMMERCE AND INDUSTRY. DIVISION OF PUBLIC HEALTH

Board of health:
Edmund M. VanBuskirk, M. D., president, Fort Wayne.
John Clay Glackman, M. D., Rockport.
Ernest Rupel, M. D., Indianapolis.
Verne K. Harvey, M. D., secretary, Indianapolis.
Executive health officer:
***Verne K. Harvey, M. D., C. P. H.**, director, Indianapolis.
Collaborating epidemiologist and assistant director:
Thurman B. Rice, M. D., Indianapolis.
Epidemiologist:
* J W Jackson, M. D., Indianapolis.
Bureau of vital statistics:
H. W. Wright, statistician and registrar, director, Indianapolis.
Bacteriological laboratory:
Clyde G. Culbertson, M. D., director, Indianapolis.
Division of chemistry:
* Martin L. Lang, State food and drug commissioner, Indianapolis.
Bureau of sanitary engineering:
* B. A Poole, B. S C. E., director, Indianapolis.
Food and drug laboratory:
* Frank J. Koehne, B. Ch. E., director, Indianapolis.
Bureau of health education:
* Bynum Legg, director, Indianapolis.
Bureau of housing, industrial and school hygiene:
* Fred K. Myles, director, Indianapolis.
Bureau of public health nursing:
* Eva F. MacDougall, R. N., Indianapolis.
Appropriation for the fiscal year beginning July 1, 1935, and ending June 30, 1936, $192,300.

IOWA STATE DEPARTMENT OF HEALTH

EX OFFICIO

Clyde L. Herring, governor, Des Moines.
Mrs. Alex Miller, secretary of State, Des Moines.
Leo J. Wegman, treasurer of State, Des Moines.
Ray Murray, secretary of agriculture, Des Moines.
Walter L. Bierring, M. D., State commissioner of health, Des Moines.

APPOINTIVE BY GOVERNOR

Edward M Myers, M. D., chairman, Boone.
Herbert E Story, M. D., secretary, Osceola.
William E. Walsh, M. D., Hawkeye.
Walter A. Sternberg, M. D., Mt. Pleasant.
Executive health officer:
***Walter L. Bierring, M. D.**, commissioner of health, Des Moines.
*Frederick J. Swift, M. D., deputy commissioner, Des Moines.
Division of communicable diseases and epidemiology:
*Carl F. Jordan, M. D., C. P. H., director, Des Moines.
Division of child health and health education:
*J. H. Kinnaman, M. D., director, Des Moines.
Division of public health engineering:
*A. H. Wieters, director, Des Moines.
State hygienic laboratories:
*M. E. Barnes, M. D., director, Iowa City.
Division of public health nursing:
*Edith S. Countryman, R. N., director, Des Moines.
Division of vital statistics:
*R. L. McLaren, director, Des Moines.
Division of licensure and registration:
*H. W. Grefe, director, Des Moines.
Division of law enforcement:
*Herman B. Carlson, director, Des Moines.

Division of barber inspection:
*William B. Wilson, director, Des Moines.
Division of cosmetology inspection:
*Hilda Geerdes, executive secretary, Des Moines.
Housing work is carried on by engineering division.
Medical, dental, optometry, cosmetology, chiropractic, osteopathy, embalming, podiatry, and barber examining boards are combined in the State Department of Health.
Executive secretary:
Albert F. Vogt, Des Moines.
Appropriations for fiscal year ending June 30, 1936:

For salaries, support, maintenance, and miscellaneous purposes	$45, 160
For child health and health education	8, 500
For inspector salaries, support, maintenance and miscellaneous	3, 940
For public health engineering salaries, support, maintenance, and miscellaneous	19, 280
For barber inspection salaries, support, maintenance, and miscellaneous	15, 520
For cosmetology inspection salaries, support, maintenance, and miscellaneous	12, 040
For the following examining boards: Medical, dental, osteopathy, chiropractic, embalmers, optometry, podiatry	8, 755
Total	113, 195

Publications:
Biennial report.
Quarterly bulletin.
Weekly health message.

KANSAS STATE BOARD OF HEALTH

Board of health:
Clay E. Coburn, M. D., president, Kansas City.
H. L. Aldrich, M. D., Caney.
George I. Thacher, M. D., Waterville.
R. S. Haury, M. D., Newton.
Charles W. Robinson, M. D., Atchison.
H. A. Browne, M. D., Galena.
L. V. Turgeon, M. D., Wilson.
J. G. Stewart, M. D., Topeka.
Herbert Smith, M. D., Pittsburg.
A. B. Mitchell, LL. B., Lawrence.
Executive health officer:
*Earle G. Brown, M. D., Secretary State board of health, Topeka.
Division of vital statistics:
*C. L. Miller, M. D., State registrar.
Division of communicable diseases:
*C. H. Kinnaman, M. D., epidemiologist, Topeka.
Division of food and drugs:
*Thomas I. Dalton, Ph. C., assistant chief food and drug inspector, Topeka.
Division of child hygiene:
*H. R. Ross, M. D., chief, Topeka.
Division of sanitation:
Earnest Boyce, chief, Lawrence.
Division of public health education:
*Earle G. Brown, M. D., director, Topeka.
Water and sewage laboratories at Kansas University:
Earnest Boyce, director, Lawrence.
Food laboratory at Kansas University:
H. P. Cady, director.
Drug laboratory at Kansas University:
Prof L. D. Havenhill, director of drug analysis, Lawrence.
Food laboratory at Kansas Agricultural College:
Prof. H. H. King, director of food analysis, Manhattan.
Public health laboratory, Topeka:
*Ross L. Laybourn, bacteriologist, in charge.

Appropriations for year ending June 30, 1936:

	Salaries	Total
Executive	$4, 400	$2, 000
Division of communicable diseases	8, 460	8, 000
Division of food and drugs	8, 140	6, 000
Division of child hygiene	5, 835	2, 165
Division of cooperative county health work		6, 000
Public health laboratory	6, 605	3, 195
Division of sanitation (engineering, water, and sewage)		2, 400
Board members	200	800
Total	33, 640	30, 560

Other sources of revenue:
Marriage fees, approximately $20,000.
Water and ice analysis fees, approximately $14,000.
Publications issued by health department:
Biennial report
Weekly morbidity report.

KENTUCKY STATE DEPARTMENT OF HEALTH

Department of health:
E. M. Howard, M. D., president, Harlan.
George S. Coon, M. D., Louisville.
A. T. McCormack, M. D , secretary, Louisville.
J. Watts Stovall, M. D., Grayson.
John H. Blackburn, M. D., Bowling Green.
W. H. Fuller, M. D., Mayfield.
A. W. Davis, M. D , Madisonville.
C. J. Johnson, D. O., Louisville.
James J. Goodwin, Louisville.
Executive health officer:
*A. T. McCormack, M. D., D. P. H., State health commissioner, Louisville.
Bureau of county health work:
*P. E. Blackerby, M. D , assistant State health commissioner, Louisville
*V. A Stilley, M. D., assistant field director, Benton.
Bureau of vital statistics:
*J F. Blackerby, director, Louisville.
Bureau of bacteriology:
*Lillian H. South, M. D., director, Louisville.
Bureau of sanitary engineering:
*F. C. Dugan, C. E., director, Louisville.
Bureau of food, drugs, and hotels:
*Sarah Vance Dugan, director, Louisville.
Bureau of venereal diseases:
Jethra Hancock, M. D., Louisville.
Bureau of public health nursing:
*Margaret L. East, R. N., director, Louisville.
Bureau of maternal and child health:
*Annie S. Veech, M D., director, Louisville.
Bureau of prevention of trachoma and blindness:
United States Trachoma Hospital:
*Robert Sory, M. D., medical officer in charge.
Bureau of budget:
*Elva V. Grant, director, Louisville.
Bureau of epidemiology:
*M. H. Jensen, M. D., director, Louisville.
Bureau of tuberculosis and State tuberculosis sanatorium:
*Paul A. Turner, M. D., director and superintendent, Louisville.
Bureau of dental health:
J. F. Owen, D. D. S., director, Lexington.
Bureau of public health education:
*John W. Kelly, director.
*Mayme Sullivan, chief clerk.

Appropriations for fiscal year ending June 30, 1936:

Central administration for all departments	$173,650
Full-time county health departments	314,000
State tuberculosis sanatorium	52,500
Total	540,150

Publications issued by health department:
Monthly bulletin.

LOUISIANA DEPARTMENT OF HEALTH

State board of health:
J. A. O'Hara, M. D., president, New Orleans.
S. E. Graham, M. D., Melville.
S. J. Couvillon, M. D., Moreauville.
Jas. C. Sartor, M. D., Rayville.
(Other members to be appointed.)
Fannie B. Nelken, secretary.
Executive health officer:
***J. A. O'Hara, M. D.**, president State board of health, New Orleans.
Bacteriologist:
*W. H. Seemann, M. D., New Orleans.
Registrar of vital statistics:
*P. A. Kibbe, M D , New Orleans.
Bureau of communicable diseases:
C. L. Brown, M. D., New Orleans.
Bureau of mental hygiene:

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Bureau of public health administration:
*R. W. Todd, M. D., U. S. P. H. S., director, New Orleans.
*George S. Bete, executive assistant, New Orleans.
Sanitary engineer:
*John H. O'Neill, New Orleans.
Analyst:
*Cassius L. Clay, New Orleans.
Bureau of animal industry:

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Sanitary inspection:
*Peter Rohrs, Jr., chief, New Orleans.
Auditor:
*Phil Arras, New Orleans.
Appropriations for fiscal year:

1934–35	$395,000
1935–36	431,000

Publications issued by health department:
Quarterly bulletin.
Biennial report.
Miscellaneous leaflets.

MAINE DEPARTMENT OF HEALTH AND WELFARE

Bureau of health:
George H. Coombs, M. D., director, Augusta.
Advisory council of health and welfare:
Miss Sally P. Moses, Bangor.
George W. Lane, Jr., Auburn.

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Walter G. Davis, Portland.
Mrs. Helen C. Donahue, Portland.
E. V. Call, M. D., Lewiston.
Division of administration:
***George H. Coombs, M. D.**, Augusta.
Division of communicable diseases:
*George H. Coombs, M. D., Augusta.
Division of laboratories:
*A. H. Morrell, M. D., Augusta.
Division of sanitary engineering:
*Elmer W. Campbell, D. P. H., Augusta.
Division of vital statistics:
*George H. Coombs, M. D., State registrar, Augusta.
Division of social hygiene:
*George H. Coombs, M. D., Augusta.
Division of public health nursing and child hygiene:
*Edith L. Soule, R. N., Augusta.
Division of dental hygiene:
*Dorothy Bryant, D. H., Augusta.
District health officers:
*J. L. Pepper, M. D., South Portland.
*R. L. Mitchell, M. D., Lewiston.
*J. W. Loughlin, M. D., Newcastle.
*B. F. Porter, M. D., Caribou.
*John A. MacDonald, M. D., Machias.

Appropriations for fiscal year ending June 30, 1936:

Administration	$67,700
District and local health officers	26,200
Venereal-disease control work	10,000
Maternity and child-welfare work	26,000
Branch State laboratory, Caribou	2,900
Aid for typhoid carriers	4,800
Completion of vital records of the State	400
Infantile-paralysis control	2,000
Total	140,000

Other sources of revenue:
Census Bureau, Washington, D. C., and miscellaneous receipts, about $2,000.
License fees for camps, roadside eating and lodging places, about $28,000 (estimated).

MARYLAND DEPARTMENT OF HEALTH

Board of health:
Robert H. Riley, M. D., Dr. P. H., chairman, Baltimore.
Thomas S. Cullen, M. D., Baltimore.
Herbert R. O'Conor, attorney general, Baltimore.
Joseph Irwin France, M. D., Port Deposit.
Huntington Williams, M. D., Dr. P. H., Baltimore.
Tolley A. Biays, C. E., Baltimore.
Benjamin C. Perry, M. D., Bethesda.
E. F. Kelly, Phar. D., Baltimore.
George M. Anderson, D. D. S., Baltimore.
Executive health officer:
***Robert H. Riley, M. D., Dr. P. H.**, director of health, Baltimore
Division of personnel and accounts:
*Walter N. Kirkman, chief, Baltimore.
Division of oral hygiene:
*Richard C. Leonard, D. D. S., chief, Baltimore.
Division of legal administration:
*J. Davis Donovan, LL. B., chief, Baltimore.
Committee on public health education:
*Gertrude B. Knipp, secretary, Baltimore.
Bureau of communicable diseases:
*Robert H. Riley, M. D., Dr. P. H., chief, Baltimore.
*C. H. Halliday, M. D., epidemiologist, Baltimore.
*C. W. G. Rohrer, M. D., Ph. D., diagnostician, Baltimore.
Bureau of vital statistics:
*John Collinson, M. D., Dr. P. H., chief, Baltimore.
Food and drug commissioner:
*A. L. Sullivan, chief, Baltimore.
Deputy food and drug commissioner:
*R. L. Swain, Phar. D., LL. B.
Bureau of bacteriology:
*C. A. Perry, chief, Baltimore.
Bureau of sanitary engineering:
*Abel Wolman, B. S. E., chief, Baltimore.
Bureau of chemistry:
*John C. Krantz, Jr., Ph. D., chief, Baltimore.
Bureau of child hygiene:
*J. H. Mason Knox, Jr., Ph. D., M. D., chief, Baltimore.
Appropriations for fiscal year ending Sept. 30, 1936, $368,802.
Publications issued by health department:
Annual report.
Weekly New Letter.
Monthly bulletin.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Public health council:
Henry D. Chadwick, M. D., chairman, Boston.
Richard M. Smith, M. D., Boston.
Francis H. Lally, M. D., Milford.
Richard P. Strong, M. D. Boston.
Sylvester E. Ryan, M. D., Springfield.
James L. Tighe, Holyoke.
Gordon Hutchins, Concord.
Executive health officer:
***Henry D. Chadwick, M. D.**, State Commissioner of public health, Boston.

Secretary:
*Alice M. Nelson.
Division of administration:
(Under direction of commissioner.)
Division of communicable diseases:
*Gaylord W. Anderson, M. D., director, Boston.
Division of sanitary engineering:
*Arthur D. Weston, C. E., director and chief engineer, Boston.
Division of biologic laboratories:
*Elliott S. Robinson, M. D., director and pathologist, Boston.
Division of food and drugs:
*Hermann C. Lythgoe, director and analyst, Boston.
Division of child hygiene:
*M. Luise Diez, M. D., director, Boston.
Division of tuberculosis sanatoria:
*Alton S. Pope, M. D., director, Boston.
Division of adult hygiene:
*Herbert L. Lombard, M. D., director, Boston.

Appropriations for department of public health 1935:

Division of administration:	
Salary of commissioner	$7,500
Personal services	18,620
Services other than personal	10,300
Division of child hygiene:	
Personal services of director and assistants	37,790
Services other than personal	15,000
Personal services in connection with maternal and infant hygiene	23,780
Expenses in connection with maternal and infant hygiene	10,700
Division of communicable diseases:	
Personal services of director, district health officers, etc.	74,835
Services other than personal	15,250
Personal services in connection with control of venereal diseases	13,680
Expenses in connection with control of venereal diseases	28,000
Wassermann Laboratory:	
For personal services	16,990
For expenses of laboratory	5,200
Antitoxin and vaccine laboratory:	
For personal services	70,970
Other services	34,500
Inspection of food and drugs:	
For personal services	56,180
Other services	12,400
For administering the shellfish law:	
Personal services	1,980
Other services	870
Water supply and disposal of sewage:	
For personal services	119,910
For other services	31,500
Division of tuberculosis:	
For personal services	30,600
Services other than personal	6,150
For personal services of tuberculosis clinic units	36,400
Services other than personal (clinic units)	17,000
Payment of subsidies	465,000
For maintenance of and for certain improvements at the Lakeville, North Reading, Rutland, and Westfield State sanatoria	1,146,250
Division of adult hygiene:	
For personal services	45,590
For other expenses	40,250
Cancer hospital at Norfolk:	
For maintenance of and for certain improvements	312,025
Total	2,711,220

MICHIGAN DEPARTMENT OF HEALTH

Advisory council of health:

Robert B. Harkness, M. D., Houghton.
U. G. Rickert, D. D. S., Ann Arbor.
Louis J. Hirschman, M. D., Detroit.
E. A. Schilz, M. D., Grand Ledge.
George J. Curry, M. D., Flint.

Executive health officer:
*C. C. Slemons, M. D., Dr. P. H., State health commissioner, Lansing.
Bureau of engineering:
*E. D. Rich, C. E., director.
*John M. Hepler, C. E., assistant engineer.
*Willard F Shephard, assistant engineer.
*Raymond J. Faust, C. E., assistant engineer.
*Orla E. McGuire, assistant engineer.
Bureau of laboratories:
*C. C. Young, Ph. D., Dr. P. H., director.
*Wm. E. Bunney, Ph. D., associate director.
*Minna Crooks, bacteriologist.
*M. B. Kurtz, D. V. M., serologist.
*Pearl Kendrick, associate director, west Michigan division.
*Ora Mills, associate director, Houghton branch.
*A. B Haw, physiological chemist.
*Roy W. Pryor, Dr P. H., immunologist.
*Merle M. Woodward, toxicologist.
*G. D. Cummings, Ph. D., assistant director.
Bureau of child hygiene and public-health nursing:
*Lillian R. Smith, M. D., director.
*Ruth E. Stocking, M. D., physician.
*Ida M. Alexander, M D., prenatal consultant.
*Helen de Spelder Moore, R. N., assistant director.
Bureau of records and statistics:
*W. J. V. Deacon, M. D., director.
Bureau of education:
*Marjorie Delavan, director.
*Pearl Turner, assistant director.
*Melita Hutzel, lecturer.
Bureau of embalming:
*Frank J. Pienta, director.
Bureau of communicable diseases and rural hygiene:
*C. D. Barrett, M. D., C. P. H., director.
*Filip Forsbeck, M. D., associate director, in charge of communicable diseases
*A. W. Newitt, M. D., C. P. H., field epidemiologist.
Bureau of mouth hygiene:
*William R. Davis, D. D. S., director.

Appropriations for fiscal year ending June 30, 1936:

Personal services	$220,000
Supplies / Contractual service	104,450
Outlay for equipment	5,500
County health departments	77,952
Smallpox vaccine, toxoid manufacturing	4,500
Beaver Island, physicians	2,375
Moving laboratory to new quarters	8,000
Antipneumococcus and antimeningococcus products	8,000
Total ($22,672.50, 5 percent, cut by Governor on legislative appropriation of $453,450)	430,777

Publications issued by health department:
Monthly bulletin.
Annual report.
Communicable-disease pamphlets.
Sex-hygiene pamphlets.
Child-hygiene pamphlets.
Engineering bulletins.
Mouth-hygiene pamphlets.
Scientific reprint series.
Rules and regulations.

MINNESOTA DEPARTMENT OF HEALTH

Board of health:
N. G. Mortensen, M. D., president, St. Paul.
Frederic Bass, C. E., vice president, Minneapolis.
Erling S. Platou, M. D., Minneapolis.
C. L. Melby, D. C., Owatonna.
E. J. Engberg, M. D., St. Paul.
S. Z. Kerlan, M. D., Aitkin.
E. T. Fitzgerald, M. D., Morris.
A. S. Milinowski, C. E., St. Paul.
Thomas G. Bell, Duluth.
Executive health officer, State Office Bldg., St. Paul:
*A. J. Chesley, M. D., secretary and executive officer.

Division of administration, State Office Bldg., St. Paul:
*O. C. Pierson, director.
Division of vital statistics, State Office Bldg., St. Paul:
*Gerda C. Pierson, director.
Division of hotel inspection, State Office Bldg., St. Paul:
*E. H. Berg, State hotel inspector.
Division of preventable diseases (including venereal diseases), University Campus, Minneapolis:
*O. McDaniel, M. D., director.
*Lucy Heathman, Ph. D., M. D., chief of laboratories.
*W. P. Greene, M. D., senior epidemiologist.
*Robert E. Rock, M. D., epidemiologist.
*Robert N. Barr, M. D., epidemiologist.
*Floyd Feldman, M. D., Dr. P. H., epidemiologist.
Division of sanitation, University Campus, Minneapolis:
*H. A. Whittaker, director.
*O. E. Brownell, C. E., senior sanitary engineer.
Division of child hygiene, university campus, Minneapolis:
Everett C. Hartley, M. D., director.
*Olivia Peterson, R. N., superintendent of public-health nursing.
Appropriations for fiscal years ending June 30, 1936 and 1937:

	1936	1937
Divisions of administration and vital statistics:		
Salaries	$32,000	$32,000
Expenses	6,200	8,000
Providing free antitoxin and other biologics	15,000	15,000
For aid to typhoid carriers	7,500	7,500
For printing lists of persons licensed to practice the healing arts	450	450
Division of preventable diseases:		
Preventable diseases and laboratory	74,000	74,000
Venereal disease control and venereal disease education	22,000	22,000
Division of sanitation:		
Sanitary engineering and laboratory	25,000	25,000
Division of child hygiene:		
Protection for maternity and infancy	22,000	22,000
Indian health work	9,000	9,000
Division of hotel inspection:		
Hotel inspection	34,500	34,500
Total	247,650	249,450

Publications issued by health department:
Educational pamphlets.

MISSISSIPPI STATE BOARD OF HEALTH

Board of health:
J. W. Lipscomb, M. D., president, Columbus.
Felix J. Underwood, M. D., secretary, Jackson.
S. E. Eason, M. D., New Albany.
L. B. Austin, M. D., Rosedale.
W. A. Dearman, M. D., Gulfport.
B. J. Shaw, M. D., Slate Spring.
W. H. Frizell, M. D., Brookhaven.
John Darrington, M. D., Yazoo City.
W. H. Banks, M. D., Philadelphia.
William R. Wright, D. D. S., Jackson.
Executive health officer:
*Felix J. Underwood, M. D., secretary State board of health, Jackson.
Vital statistics:
*R. N. Whitfield, M. D., director, Jackson.
Child hygiene and public-health nursing:
*Felix J. Underwood, M. D., acting director, Jackson.
*Mary D. Osborne, R. N., associate director, public-health nursing, Jackson.
*Gladys Eyrich, supervisor oral hygiene, Jackson.
Hygienic laboratory:
*T. W. Kemmerer, M. D., director, Jackson.
Sanitary engineering:
*H. A. Kroeze, C. E., director, Jackson.
*N. M. Parker, D. V. S., State meat and milk supervisor, Jackson.
*C. M. Ledbetter, assistant State sanitary engineer, Jackson.
*Floyd Ratliff, State sanitary inspector, Jackson.
County health work:
*H. C. Ricks, M. D., C. P. H., director, Jackson.
*John A. Milne, M. D., M. P. H., assistant director, Jackson.
*Ora E. Phillips, R. N., supervising nurse.
*Joseph E. Johnston, field supervisor of sanitation, Jackson.
Tuberculosis control:
*Henry Boswell, M. D., director, Sanatorium.
*W. D. Hickerson, M. D., clinician, field tuberculosis diagnostic unit, Sanatorium.
Industrial hygiene:
*J. W. Dugger, M. D., director, Jackson.
Epidemiological unit:
*A. L. Gray, M. D., M. P. H., director, Jackson.
*Catherine Mayfield, bacteriologist.
*Margaret Meade, nurse-investigator.
State appropriations for period January 1, to December 31, 1934, $162,500; January 1 to December 31, 1935, $162,500.
Publications issued by health department:
Biennial report.
Health pamphlets.

MISSOURI STATE BOARD OF HEALTH

Board of health:
T. S. Bourke, M. D., president, Kansas City.
W. T. Elam, M. D., vice president, St. Joseph.
P. T. Bohan, M. D., Kansas City.
W. L. Brandon, M. D., Poplar Bluff.
E. S. Smith, M. D., Kirksville.
F. W. Bailey, M. D., St. Louis.
E. T. McGaugh, B. L., M. D., State health commissioner, Jefferson City.
Executive health officer:
*E. T. McGaugh, B. L., M. D., State health commissioner, Jefferson City.
Epidemiology:
*E. K. Musson, M. D., M. P. H., epidemiologist.
Laboratories:
*C. F. Adams, B. Agr., M. D., director.
Sanitary engineering:
*Robert Stewart, acting chief public health engineer.
Vital statistics:
*William F. Lunsford, M. D., M. P. H., assistant State health commissioner.
Child hygiene and cooperative county health work:
*H. S. Gove, M. D., director.
Public health nursing:
*Miss Helena Dunham, R. N., director.
Appropriations for the State board of health, biennial period, 1935-36:

State board of health:	
Additions	$2,000
Operation	40,000
Personal service	165,000
Total	207,000
Water and sewage fund (from fees):	
Operation	5,000
Personal service	9,000
Total	14,000

Board of health fund (medical licensure, from fees):
- Operation ... 5,000
- Personal service ... 20,000
- Total ... 25,000

Cosmetology and hairdressing:
- Additions ... 200
- Repairs and replacements ... 100
- Operation ... 12,000
- Personal service ... 26,000
- Total ... 38,300

Food and drug:
- Operation ... 34,000
- Personal service ... 68,000
- Total ... 102,000

MONTANA DEPARTMENT OF PUBLIC HEALTH

Board of health:
- E. G. Balsam, M. D., president, Billings.
- George F. Truman, M. D., Missoula.
- E. M. Porter, M. D., Great Falls.
- L. H. Fligman, M. D., Helena.
- B. L. Pampel, M. D., Livingston.
- W. F. Cogswell, M. D., secretary, Helena.

Executive health officer:
- *W. F. Cogswell, M. D., secretary, Helena.

Division of communicable diseases:
- B. K. Kilbourne, M. D., epidemiologist, Helena.

Division of child welfare:
- *W. F. Cogswell, M. D., acting director, Helena.
- *Florence Jordan, assistant director, Helena.

Division of food and drugs:
- *J. W. Forbes, director, Helena.

Division of vital statistics:
- *W. F. Cogswell, M. D., State registrar, Helena.
- *L. L. Benepe, deputy State registrar, Helena.

Division of water and sewage:
- *H. B. Foote, director, Helena.
- W. M. Cobleigh, consulting sanitary engineer, Bozeman.
- *Ludwig Champa, analyst, Helena.

Hygienic laboratory:
- *Fred D. Stimpert, director, Helena.
- *Edith Kuhns, technician, Helena.
- E. D. Hitchcock, M. D., consulting bacteriologist, Great Falls.

Appropriations for the years ending June 30:

	1936	1937
Salaries	$23,300	$35,000
Operating expenses	15,750	14,500
Capital repairs and replacements	500	300
Division of child welfare	10,500	9,000
Board of entomology (Rocky Mountain spotted-fever work)	3,000	500
Total	53,050	59,300

NEBRASKA DEPARTMENT OF HEALTH

Executive health officer:
- *P. H. Bartholomew, M. D., acting director of health, Lincoln.
- Collaborating epidemiologist:
- *P. H. Bartholomew, M. D., Lincoln.

Bacteriologist:
- *L. O. Vose, Lincoln.

Division of venereal diseases:
- *P. H. Bartholomew, M. D., director, Lincoln.

Statistician:
- *Jean Barrett, Lincoln.

Medical examining board:
- W. R. Boyer, M. D., Pawnee City.
- H. J. Lehnhoff, M. D., Lincoln.
- P. A. DeOgny, M. D., Milford.

Appropriations for biennial period ending June 30, 1937:
- Salary of director ... $7,200
- Salaries ... 20,000
- Maintenance ... 10,000
- Total ... 37,200

NEVADA STATE BOARD OF HEALTH

State board of health:
- Richard Kirman, Sr., Governor, president, Carson City.
- Edward E. Hamer, M. D., secretary and State health officer, Carson City.
- W. G. Greathouse, secretary of state.
- John Fuller, M. D., Reno.
- C. W. West, M. D., Reno.

Executive health officer:
- *Edward E. Hamer, M. D., State health officer, Carson City.

State hygienic laboratory at State university:
- *Vera E. Young, acting director, Reno.

Appropriations for period from July 1, 1935, to June 30, 1937:
- Salary of secretary ... $5,000
- Salary of clerk ... 3,600
- Traveling expenses ... 1,000
- Office supplies, heat, rent, and light ... 1,550
- Record books for county registrars ... 300
- Equipment ... 200
- Registration of births and deaths ... 350
- Purchase of diphtheria and other dangerous disease antitoxin ... 500
- Total ... 12,500

Publications issued by health department:
- Biennial report.
- Special bulletins.

NEW HAMPSHIRE STATE BOARD OF HEALTH

Board of health:
- George C. Wilkins, M. D., Manchester.
- Barbara Beattie, M. D., Littleton.
- H. Styles Bridges, Governor, Concord.
- Francis W. Johnston, attorney general, Claremont.
- James W. Jameson, M. D., Concord.
- Robert B. Kerr, M. D., Manchester.

Executive health officer:
- *Charles Duncan, M. D., secretary, State board of health, Concord.

Division of maternity, infancy, and child hygiene:
- *Mary D. Davis, R. N., director and supervising nurse, Manchester.

Department of vital statistics:
- *Charles Duncan, M. D., registrar, Concord.

Division of chemistry and sanitation:
- *Charles D. Howard, chief of division, Concord.
- *Frederick Vintinner, assistant chemist, Concord.
- *Harriet I. Albee, assistant chemist and bacteriologist, Concord.
- *Leonard W. Trager, assistant sanitary engineer, Concord.
- *Russell A. Eckloff, inspector.
- *Joseph X. Duval, chief inspector, Concord.
- Diagnostic and pathological department:
  - *William R. Macleod, serologist and diagnostic bacteriologist, Concord.
  - H. N. Kingsford, M. D., pathologist, Hanover.
  - *Benjamin Jewell, assistant in pathological laboratory, Concord.

Venereal-disease division:
- *Charles A. Weaver, M. D. Manchester.

Appropriations for fiscal year ending June 30, 1936:
- State board of health ... $51,380
- Laboratory of hygiene ... 18,160
- Vital statistics ... 3,480
- Total ... 73,020

Publications issued by health department:
- Bulletin.
- Biennial report.

NEW JERSEY DEPARTMENT OF HEALTH

Board of health:
- Irvin E. Deibert, M. D., president, Camden.
- Margaret L. McNaughton, vice president, Jersey City.
- Mrs. Helen M. Berry, Newark.
- Joseph N. Fowler, Bivalve.
- E. W. Smillie, V. M. D., Plainsboro.
- J. E. H. Guthrie, D. D. S., Newark.
- Clyde Potts, C. E., Morristown.
- James E. Russell, Trenton.
- John V Bishop, Columbus.
- Stanley H. Nichols, M. D., Asbury Park.

Executive health officer:
- *J. Lynn Mahaffey, M. D., director of health, Trenton.

Bureau of bacteriology:
- *John V. Mulcahy, chief, Trenton.

Bureau of chemistry:
- *John E. Bacon, chief, Trenton.

Bureau of administration:
- *Charles J. Merrell, chief, Trenton.

Bureau of food and drugs:
- *Walter W. Scofield, chief, Trenton.

Bureau of public-health education:
- *Edwin C. Lanigan, chief, Trenton.

Bureau of child hygiene:
- Julius Levy, M. D., consultant, Trenton.

Bureau of local health administration:
- *Wm. H. McDonald, chief, Trenton.

Bureau of engineering:
- *H. P. Croft, chief, Trenton.

Bureau of vital statistics:
- *David S. South, chief, Trenton.

Bureau of venereal-disease control:
- A. J. Casselman, M. D , consultant, Trenton.

Appropriations for fiscal year ending June 30, 1936:

Salaries	$231,568
Miscellaneous	60,585
Child hygiene	100,379
Venereal-disease control	25,620
Other special appropriations	64,515
Total	482,667

Publications issued by health department:
- Monthly bulletin.
- Annual report.

NEW MEXICO BUREAU OF PUBLIC HEALTH

Board of public welfare:
- Mrs. David Chavez, Jr., president, Santa Fe.
- Wm. H. Livingston, M. D., vice president, Santa Fe.
- Mrs. Orren Beaty, secretary, Portales.
- Donovan N. Hoover, finance chairman, Santa Fe.
- Mrs. C. C. Meacham, Albuquerque.

Executive health officer:
- *J. Rosslyn Earp, Dr. P. H., director of public health, Santa Fe.

Division of sanitary engineering and sanitation:
- *Paul S. Fox, M. S. in C. E., chief, Santa Fe.

Division of county health work:
- *C. H. Douthirt, M. D., director, Santa Fe.

Acting State supervisor of public-health nursing:
- *Grace M. Coffman, R. N., Santa Fe.

Public-health laboratory:
- *Myrtle Greenfield, chief, Albuquerque.

State registrar:
- *Miss Billy Tober, Santa Fe.

Appropriation for years 1935-36 and 1936-37, per annum, $43,500. Fiscal year ends June 30.

NEW YORK STATE DEPARTMENT OF HEALTH

Public-health council:
- Simon Flexner, M. D., LL. D., chairman, New York.
- Homer Folks, LL. D., vice chairman, Yonkers.

Public-health council—Continued
- Livingston Farrand, M. D., LL. D., Ithaca
- Walter A. Leonard, M. D., Cambridge.
- Henry N. Ogden, C. E., Ithaca.
- Frederick F. Russell, M. D., New York.
- Thomas Parran, Jr., M. D. (ex officio), commissioner of health, Albany.

Executive health officer:
- *Thomas Parran, Jr., M. D., LL. D., State commissioner of health, Albany.

Deputy commissioner of health:
- *Paul B. Brooks, M. D., Albany.

Assistant commissioner for local health administration:
- *Edward S. Godfrey, Jr., M. D., Albany.

Administrative officer:
- *Edmund Schreiner, LL. B., Albany.

Administrative finance officer:
- *Clifford C. Shoro, Albany.

Division of public-health education:
- *B. R. Rickards, director, Albany.

Division of sanitation:
- *Charles A. Holmquist, C. E., director, Albany.

Division of vital statistics:
- *Joseph V. de Porte, Ph. D., director, Albany.

Division of maternity, infancy, and child hygiene:
- *Elizabeth M. Gardiner, M. D., director, Albany.

Division of communicable diseases:
- *George H. Ramsey, M. D., director, Albany.

Division of tuberculosis:
- *Robert E. Plunkett, M. D., director, Albany.

Division of social hygiene:
- ————————

Division of laboratories and research:
- *August B. Wadsworth, M. D., director, Albany.

Division of public-health nursing:
- *Marion W. Sheahan, R. N., director, Albany.

Division of orthopedics:
- *Walter J. Craig, M. D., director, Albany.

Division of cancer control:
- *Burton T. Simpson, M. D., director.

State institute for the study of malignant diseases, Buffalo:
- *Burton T. Simpson, director.

New York State Hospital for Incipient Pulmonary Tuberculosis, Ray Brook:
- *H. A. Bray, M. D., superintendent.

New York State Reconstruction Home, West Haverstraw:
- *John B. Kelly, superintendent.

New York State Tuberculosis Hospital, Oneonta:
- *Ralph Horton, M. D., superintendent.

New York State Tuberculosis Hospital, Mount Morris:
- *N. Stanley Lincoln, M. D., superintendent.

Appropriations for fiscal year ending June 30, 1936:

Personal service	$1,966,830.00
Maintenance and operation	1,208,471.78
State aid to county laboratories	138,000.00
State aid to county health activities	479,884.50
Construction and permanent betterments	555,650.00
Total	4,348,836.28

Other sources of revenue:
- Fees from certified transcripts of birth, death, and marriage certificates, $2,762.48 per annum.
- Licensing laboratories, $521.
- Sale of serums, $2,587.72.
- Licensing of embalmers and undertakers, $5,578.
- Registration of embalmers and undertakers, $17,797.
- Rental of radium, $172.36.
- Care of county cases at reconstruction home, $106,151.07.
- Refund of transportation of discharged patients from tuberculosis hospitals, Ray Brook, $2,469.83.

Publications issued by health department:
- Weekly Health News.
- Monthly Vital Statistics Review.
- Annual Report.

NORTH CAROLINA STATE BOARD OF HEALTH

Board of health:
- S. D. Craig, M. D., president, Winston-Salem.
- J. N. Johnson, D. D. S., vice president, Goldsboro.
- G. G. Dixon, M. D., Ayden.
- H. Lee Large, M. D., Rocky Mount.
- H. G. Baity, Chapel Hill.
- W. T. Rainey, M. D., Fayetteville.
- Hubert B. Haywood, M. D., Raleigh.
- James P. Stowe, Ph. G., Charlotte.
- John LaBruce Ward, M. D., Asheville.

Executive health officer:
- *Carl V. Reynolds, M. D., secretary-treasurer and State health officer, Raleigh.

Division of laboratories:
- *John H. Hamilton, M. D., director, Raleigh.

Division of preventive medicine:
- *G. M. Cooper, M. D., director, Raleigh.
  - (a) Maternity and infancy.
  - (b) Health education.

Division of vital statistics:
- *R. T. Stimpson, M. D., director, Raleigh.

Division of county health work:
- *R. E. Fox, M. D., M. P. H., director, Raleigh.

Division of epidemiology:
- *J. C. Knox, M. D., M. P. H., director, Raleigh.

Division of sanitary engineering:
- *Warren H. Booker, C. E., director, Raleigh.

Division of oral hygiene:
- *Ernest A. Branch, D. D. S., director, Raleigh.

Appropriation for fiscal year ending June 30, 1936, $308,900.

Other sources of revenue: Special fees, $47,420.

NORTH DAKOTA DEPARTMENT OF PUBLIC HEALTH

Advisory health council:
- John Crawford, M. D., New Rockford.
- Agnes Stucke, M. D., Garrison.
- N. B. Livingston, D. D. S., Minot.
- P. O. Sathre, attorney general, ex officio, Bismarck.
- Arthur E. Thompson, superintendent of public instruction, ex officio, Bismarck.
- Maysil M. Williams, M. D., C. P. H., State health officer.

Executive health officer:
- *Maysil M. Williams, M. D., C. P. H., State health officer, Bismarck.

Bureau of child hygiene and public health nursing:

Bureau of venereal diseases:

Bureau of vital statistics:
- *Miss Margaret Lang.

Bureau of sanitary engineering:
- *M. D. Hollis.

Appropriations for biennial period ending June 30, 1937:

Salary, State health officer	$4,800
Salary, director of communicable and venereal diseases	4,800
Salary, sanitary engineer	4,800
Salary, director of vital statistics	2,640
Salary, director of child hygiene	-----
Stenographers	4,320
Chief clerk and accountant	3,000
Clerks	4,000
Postage	1,500
Office supplies	1,000
Furniture and fixtures	1,000
Printing	3,000
Miscellaneous	500
Travel expense	4,350
Card indexing, filing and binding birth, death, and marriage certificates	2,000

OHIO DEPARTMENT OF HEALTH

Public-health council:
- Walter H. Hartung, M. D., chairman, Columbus.
- James E. Bauman, secretary.
- G. D. Lummis, M. D.

Public-health council—Continued.
- R. M. Calfee.
- W. I. Jones, D. D. S.
- H. G. Southard, M. D., Columbus.

Executive health officer:
- *Walter H. Hartung, M. D., director of health, Columbus.

Assistant director of health:
- *James E. Bauman.

Division of administration:
- *James E. Bauman, chief.
- *C. A. Orrison, chief clerk.
- Bureau of publicity:
  - *Paul Mason, chief.
- Bureau of local health organization:
  - *R. W. DeCrow, M. D., chief.

Division of communicable diseases:
- *Finley Van Orsdall, M. D., chief.
- Bureau of tuberculosis:
  - *W. J. Smith, M. D.
- Bureau of venereal diseases:
  - *W. P. Johnson, M. D.
- Bureau of prevention of blindness:
  - *W. P. Johnson, M. D.

Division of sanitary engineering:
- *F. H. Waring, chief.
- Bureau of plumbing inspection:
  - *George Woods, chief.

Division of vital statistics:
- *Irva C. Plummer, chief.

Division of laboratories:
- *Leo F. Ey, chief.

Division of hygiene:
- *E. R. Hayhurst, M. D., chief.
- Bureau of hospitals:
  - *Clara E. Reeder, R. N., chief.
- Bureau of child hygiene:
  - *A. L. Van Horn, M. D., chief.
- Bureau of occupational diseases:
  - *E. R. Hayhurst, M. D., chief.

Appropriations for 12 months ending Dec. 31, 1935:

Personal services	$195,500.00
Maintenance	51,710.50
State aid for health districts	150,000.00
Total	397,210.50

Publications issued by health department:
- Ohio Health News (semimonthly).

OKLAHOMA DEPARTMENT OF PUBLIC HEALTH

Executive health officer:
- *Charles M. Pearce, M. D., State health commissioner, Oklahoma City.

Assistant State health commissioner:
- *J. P. Folan, Oklahoma City.

Bureau of vital statistics:
- *Alice L. Talbot, registrar.

Bureau of laboratories:
- *Floyd Whipple, bacteriologist.
- *Katherine Harris, assistant bacteriologist.
- *Taylor Rogers, chemist.

Bureau of sanitary engineering:
- *H. J. Darcey, B. S. in engineering, director.

Appropriations for fiscal years ending June 30, 1936 and 1937:

Administration:	
Commissioner	$4,800
Assistant commissioner	2,400
Chief clerk	1,800
Stenographer	1,800
Bookkeeper	2,000
Stenographer	1,500
Do	1,200
Bureau of public health education:	
Stenographer	1,500
Diagnostic laboratory:	
State chemist	3,000
Assistant chemist	2,400
Bacteriologist	3,000
Assistant bacteriologist	2,400
Record clerk	1,800
Sanitary inspection:	
Sanitary engineer	3,000
Inspectors (8 at $1,800 each)	14,400

Appropriations for fiscal years ending June 30, 1936 and 1937—Continued.

Bureau of vital statistics:	
Registrar	$2,400
Assistant registrar	1,800
Statistical clerks (3 at $1,500 each)	4,500
Payment of local registrars	30,000
Contractual services:	
Traveling	10,000
Communication	3,500
Gas and lights at laboratory	1,500
Printing, other than office supplies	2,500
Supplies:	
Medical supplies	25,000
Office supplies	750
Equipment:	
Office equipment	500
Bureau of epidemiology:	
Rural sanitation, clinics	30,000
Malarial control	7,500
Manufacture of typhoid and diphtheria toxoid	4,000
Total	170,950

OREGON STATE BOARD OF HEALTH

Board of health:
- Robert L. Benson, M. D., president, Portland.
- N. E. Irvine, M. D., vice president, Lebanon.
- Arthur W. Chance, D. D. S., M. D., Portland.
- H. H. Foskett, M. D., Portland.
- J. H. Rosenberg, M. D., Portland.
- F. Floyd South, M. D., Portland.
- Archie C. VanCleve, M. D., Portland.

Executive health officer:
- *Frederick D. Stricker, M. D., secretary and State health officer, Portland.

Registrar of vital statistics:
- *Frederick D. Stricker, M. D., Portland.

Division of public health nursing and child hygiene:
- *Mary P. Billmeyer, R. N., Portland.

Director of laboratory:
- *William Levin, D. P. H., Portland.

Appropriations for fiscal year ending December 31, 1935, $36,368.

Publications issued by health department:
- Annual report.
- Biennial report.
- Pamphlets and posters.
- Weekly letter.

PANAMA CANAL ZONE HEALTH DEPARTMENT

Executive health officer:
- *Col. O. G. Brown, Medical Corps, United States Army, chief health officer, Balboa Heights.
- *D. P. Curry, M. D., assistant chief health officer, Balboa Heights.
- *L. B. Bates, M. D., chief, board of health laboratory, Balboa Heights.
- *C. V. Akin, Senior Surgeon, U. S. P. H. S., chie quarantine officer, Balboa Heights.

Appropriation for 1935–36, $1,517,842.

PENNSYLVANIA DEPARTMENT OF HEALTH

Advisory health board:
- Edith MacBride-Dexter, M. D., chairman.
- Ross V. Patterson, M. D., Philadelphia.
- William G. Turnbull, M. D., Philadelphia.
- John M. Beck, M. D., Alexandria.
- Saylor T. McGhee, M. D., Lock Haven.
- C. B. Auel, M. E., East Pittsburgh.
- W. L. Eicher, Oakmont.

Sanitary water board:
- Edith MacBride-Dexter, M. D., chairman.
- Thomas E. Buchanan, secretary of forest and waters, Harrisburg.
- O. M. Deibler, commissioner of fisheries, Harrisburg.
- Philip G. Platt, Wallingford.
- Marion McKay, Pittsburgh.

Executive bureau:
- *Edith MacBride-Dexter, M. D., secretary of health, Harrisburg.
- *Paul A. Rothfuss, M. D., deputy secretary of health, Harrisburg.
- *Clinton T. Williams, comptroller, Harrisburg.

Division of accounts:
- *E. J. MacNamara, Harrisburg.

Division of supplies:
- *S. J. Purvis, Harrisburg.

Division of laboratories:
- *John L. Laird, M. D., Philadelphia.

Institutions:
- Mont Alto Sanatorium:
  - *C. C. Custer, M. D., medical director, South Mountain.
- Cresson Sanatorium:
  - *Louis A. Wesner, M. D., medical director, Cresson.
- Hamburg Sanatorium:
  - *H. A. Gorman, M. D., medical director.
- State hospital for crippled children:
  - *Francis S. Chambers, M. D., chief surgeon, Elizabethtown.
  - *Mrs. Hazel Smith, superintendent, Elizabethtown.

Bureau of health law enforcement:
- *Paul A. Rothfuss, M. D., Harrisburg.
- Division of school inspection:
  - *John W. German, Harrisburg.
- Preschool division:
  - *Mary Riggs Noble, M. D., Harrisburg.
- Division of public health education:
  - *J. C. Funk, LL.B., Harrisburg.
- Division of drug control:
  - *Michael V. McFadden, Harrisburg.
- Division of restaurant hygiene:
  - *Robert W. Shelton, Harrisburg.
- Division of inspection and prevention:
  - *Horace Krone, Harrisburg.

Bureau of health conservation:
- *J. Moore Campbell, M. D., Harrisburg.
- Division of genitourinary diseases:
  - *Edgar S. Everhart, M. D., Harrisburg.
- Division of epidemiology:
  - *S. J. Dickey, M. D., Harrisburg.
- Division of environmental hygiene:
  - *Howard F. Bronson, Harrisburg.

Bureau of nursing:
- *Alice M. O'Halloran, R. N., Harrisburg.

Bureau of milk sanitation:
- *Wilbur K. Moffett, Harrisburg.

Bureau of sanitary engineering:
- *W. L. Stevenson, Harrisburg.

Bureau of vital statistics:
- *Emlyn Jones, M. D., Harrisburg.

Appropriation for biennial period ending May 31, 1937:

Salary of secretary	$20,000
General health purposes and maintenance of sanatoria and hospital for crippled children	4,880,000
Total	4,900,000

PHILIPPINE ISLANDS BUREAU OF HEALTH

Executive health officer:
- *Jose Fabella, M. D., director of health and welfare, Manila.

PUERTO RICO DEPARTMENT OF HEALTH

Insular board of health:
- R. López Sicardó, M. D., chairman, San Juan.
- W. A. Glines, M. D., San Juan.
- E. Koppisch, M. D., San Juan.
- Blas C. Herrero, M. D.
- H. Cook, expert chemist.
- Etienne Totti, civil and sanitary engineer, San Juan.
- A. Rivera, veterinarian.
- Manuel del Valle, D. D. S.
- A. Ortiz Toro, attorney, San Juan.
- Luis B. de la Vega, M. D., secretary.

Executive health officer
*E. Garrido Morales, M. D., Dr. P. H, commissioner of health, San Juan
*Antonio Arbona, M D, assistant commissioner of health, section of public health, San Juan
*Pedro Malaret, M D, assistant commissioner of health, section of charities, San Juan
Division of property and accounts
*Rafael Méndez, chief, San Juan
Bureau of general sanitation
*W F Lippit, M D, chief, San Juan
Bureau of sanitary engineering
*Octavio Marcano, sanitary engineer, San Juan
Biological laboratory
*Oscar Costa Mandry, M D, director, San Juan
Chemical laboratory
*R del Valle Sárraga, Ph C, director, San Juan
Bureau of epidemiology and vital statistics
*Abel de Juan, M D, chief, San Juan
Specialist in tuberculosis
*J Rodriguez Pastor, M D, San Juan
Bureau of malaria
*Walter C Earle, M D, chief, San Juan.
Bureau of infant hygiene
*Marta Robert de Romeu, M D, chief, San Juan
Bureau of public-health units
*George C Payne, M D, chief, San Juan
Division of social service
*Beatriz Lassalle, superintendent, San Juan

Appropriations for the fiscal year 1934–35

Office of the commissioner	$97,891 42
Bureau of general sanitary inspection	40,107 00
Bureau of sanitary engineering	22,454 75
Biological laboratory	35,333 55
Chemical laboratory	17,646 20
Bureau of epidemiology and vital statistics	82,935 75
Bureau of malaria	41,067 00
Bureau of infant hygiene	12,996 75
Bureau of public-health units	306,281 25
Division of social service	5,680 00
Section of charities	622,306 35
Total	1,284,700 02

RHODE ISLAND DEPARTMENT OF PUBLIC HEALTH

Executive health officer
*Edward A McLaughlin, M D, director of public health and State registrar, State Office Building, Providence
Director of laboratories
*Lester A Round, Ph D, Providence
Division of sanitary engineering and chemistry
Charles L Pool, director, Cranston
Division of child hygiene
Marion A Gleason, M D, director
Division of communicable diseases and rural hygiene
Morris L Grover, M D, M P H, director
Division of vital statistics
*Edward A McLaughlin, M D, director
Division of social hygiene
Daniel L Morrissey, M D, director

Appropriations for fiscal year ending June 30, 1936

Executive department (including vital statistics and communicable diseases)	$41,000
Pathological laboratory	23,800
Chemical laboratory	13,240
Child hygiene	19,000
Social hygiene	6,500

Other sources of revenue
Fees for medical licenses, each, $20
Fees for midwives' licenses, each, $10
Renewal of midwife licenses, each, 50 cents
Licenses for swimming pools Licenses issued for quarters, for entire year, $20, for any quarter thereof, $5
Fees for certified copies of births, marriages, and deaths, each, 50 cents

Publications
Annual health report
Annual registration report
Weekly and monthly morbidity report
Monthly mortality report

SOUTH CAROLINA STATE BOARD OF HEALTH

Executive committee
F M Routh, M D, chairman, Columbia.
K M Lynch, M D, Charleston
W R Mead, M D, Florence
E A Hines, M D, Seneca
W R Wallace M D, Chester
L D Boone, M D, Aiken
George W Dick D D S, Sumter
D Lesesne Smith, M D Spartanburg
J Lee Carpenter, Ph G, Greenville
John M Daniel, attorney general, Columbia
A J Beattie, comptroller general, Columbia
Executive health officer
*James A Hayne, M D, State health officer, Columbia
Bureau of rural sanitation and county health work
*Ben F Wyman, M D, director, Columbia
Hygienic laboratory
*H M Smith, M D, director, Columbia
Bureau of vital statistics
*Martin Woodward, M D, director, Columbia

Appropriations, July 1, 1935 to June 30, 1936

Supervision and control of health	$1,120
Superintendence and accounts	21,945
Bureau of rural sanitation and county health work	73,476
Bureau of vital statistics	8,800
Hygienic laboratory	12,130
Distribution of biologics	34,000
Total	151,471

SOUTH DAKOTA STATE BOARD OF HEALTH

Board of health
R J Quinn, M D, president Burke
N T Owen M D, vice president, Rapid City.
H J Bartron, M D, Watertown
Carl A Feige M D, Canova
Park B Jenkins, M D, superintendent, Pierre.
Executive health officer
*Park B Jenkins, M D, Pierre
Division of vital statistics
*Park B Jenkins M D, Pierre
Division of child hygiene
*Lottie G Bigler, M D, Pierre
Division of sanitary engineering
*W W Towne, C E, Pierre
Division of medical licensure
*Park B Jenkins, M D, Pierre
Division of records and accounts
*Katherine Niebuhr, Pierre
Laboratories (at Vermillion)
J C Ohlmacher, M D, Vermillion
Appropriations

	1935–36	1936–37
Salaries and wages	$10 000	$10,000
Biological products	2 000	2,000
Postage, communication, and travel	3,000	3,000
Crippled children	2,500	2,500
Dues	50	50
Infancy and maternity work	5,000	5,000
Office supplies, printing, and binding	2,500	2,500
Fund to be used in matching Federal funds	10,000	10,000
Total	35,050	35,050

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

Central administration:
*W. C. Williams, M. D., C. P. H., commissioner, Nashville.
Local health service:
*R. H. Hutcheson, M. D., C. P. H., acting director, Nashville.
Child hygiene and public health nursing:
*Miss Donna Pearce, R. N., associate director, Nashville.
Division of vital statistics:
R. H. White, Ph. D., director, Nashville.
Division of preventable diseases:
*Crit Pharris, M. D., C. P. H., director, Nashville.
Division of laboratories:
*W. H. Gaub, C. P. H., director, Nashville.
Division of sanitary engineering:
*Roy J. Morton, C. E., director, Nashville.
State appropriation for biennium July 1, 1935, to June 30, 1937, $510,760- $255,380 per annum.
Balance from old appropriation, supplementary, approximately $55,000 for fiscal year ending June 30, 1935.
Other sources of revenue:
Rockefeller Foundation International Health Division, $19,400 for year ending June 30, 1936.
Commonwealth fund, $29,564 for year ending June 30, 1936.
U. S. Public Health Service (trachoma only), $4,211 for year ending June 30, 1936.

TEXAS DEPARTMENT OF HEALTH

State board of health:
E. W. Wright, M. D., chairman, Bowie.
W. P. Harrison, M. D., vice chairman, Teague.
C. M. Rosser, M. D., Dallas.
J. M. Howe, C. E., Houston.
S. A. Woodward, M. D., Fort Worth.
J. S. McCelvey, M. D., Temple.
Henry Hein, Ph. G., San Antonio.
Geo. W. Cox, M. D , Del Rio.
Hubert S. Jackson, D. D. S., San Antonio.
Executive health officer:
*John W. Brown, M. D., State health officer Austin.
Bureau of child hygiene:
*H. N. Barnett, M. D., director.
Bureau of vital statistics:
*W. A. Davis, M. D., director.
Bureau of laboratories:
*S. W. Bohls, M. D., director.
Bureau of rural and county health work:
*D. C. Peterson, M. D., director.
Bureau of communicable disease control and epidemiology:
*Charles D. Reece, M. D., director.
Bureau of sanitary engineering:
*V. M. Ehlers, C. E., director.
Bureau of foods and drugs:
*E. C. Koerth, Ph. G., director.
Bureau of public health education:
*L. E. Bracy, director.
Appropriations for fiscal years 1936-37, $206,672.50 per annum.

UTAH STATE BOARD OF HEALTH

Board of health:
Joseph R. Morrell, M. D., president, Ogden.
J. L. Jones, M. D., secretary, Salt Lake City.
T. B. Beatty, M. D., Salt Lake City.
E. A. Tripp, D. D. S., Salt Lake City.
T. J. Howells, M. D., Salt Lake City.
R. A. Hart, C. E., Salt Lake City.
Barnet E. Bonar, M. D., Salt Lake City.
Executive health officer:
*J. L. Jones, M. D., Dr. P. H., State health commissioner, Salt Lake City.
Bureau of vital statistics:
*J. L. Jones, M. D., Dr. P. H., State registrar, Salt Lake City.
Bureau of child hygiene:
*J. L. Jones, M. D., Dr. P. H., director, Salt Lake City.
Sanitary engineer:
*Lynn Thatcher.
Bacteriological laboratory:
*E. H. Bramhall, bacteriologist.
Appropriations for 2 years ending June 30, 1937, $42,300.
Publications issued by health department:
Biennial report.
Monthly communicable disease report.
Special bulletins.

VERMONT DEPARTMENT OF PUBLIC HEALTH

State board of health:
William G. Ricker, M. D., chairman, St. Johnsbury.
Charles G. Abell, M. D., Enosburg Falls.
Claude M. Campbell, M. D., Manchester Center.
Executive health officer:
*Charles F. Dalton, M. D., Secretary, State board of health, Burlington.
Laboratory of hygiene:
*Charles F. Whitney, M. D., Burlington.
Sanitary engineering:
Earl L. Waterman, C. E., director, Burlington
Sanitary inspector:
*Fred S. Kent, M. D., Burlington.
Division of communicable diseases:
*Fred S. Kent, M. D., Burlington.
Division of tuberculosis:
*Harold W. Slocum, Burlington.
Division of poliomyelitis after-care:
*Miss Lillian E. Kron, R. N., Burlington.
Division of public health nursing:
*Miss Nellie M. Jones, R. N.
Appropriations for fiscal year ending June 30, 1936, $56,000; 1937, $56,000.
Other sources of revenue: Private donations for study and treatment of infantile paralysis.
Publications issued by the department of public health:
Biennial report.
Modern Health Crusader.

VIRGIN ISLANDS DEPARTMENT OF HEALTH

Executive health officer:
*Knud Knud-Hansen, M. D., commissioner of public health, St. Thomas.

VIRGINIA DEPARTMENT OF HEALTH

Board of health:
W. T. Graham, M. D., president, Richmond.
Mrs. Franklin H. Kenworthy, Purcellville.
Frank Darling, Hampton.
J. A. McGuire, M. D., Norton.
George B. Lawson, M. D., Roanoke.
Guy R. Harrison, D. D. S., Richmond.
L. T. Royster, M. D., University.
Executive health officer:
*I. C. Riggin, M. D., State health commissioner, Richmond.
Assistant health officer:
*Roy K. Flannagan, M. D., Richmond.
Director of rural health work and tuberculosis outpatient service:
*E. L. McQuade, M. D., D. P. H., Richmond.
Epidemiologist:
*G. F. McGinnes, M. D., Richmond.
Director of child health:
*B. B. Bagby, M. D., Richmond.
Registrar of vital statistics:
*W. A. Plecker, M. D., Richmond.
Director of public-health nursing:
*Mary I. Mastin, R. N., Richmond.
Director of mouth hygiene:
*N. T. Ballou, D. D. S., Richmond.

Bacteriologist:
*Adah Corpening, Richmond.
Chief sanitary engineer:
*Richard Messer, C. E., Richmond.

Appropriations for the year July 1, 1935, to June 30, 1936:

Administration	$22,710
Sanitary engineering	19,450
Shellfish sanitation	15,000
Publicity	7,245
Town and camp sanitation	4,075
Social hygiene	1,545
Prevention of tuberculosis	45,000
Control of epidemics	16,875
Laboratories	18,470
Promotion of child health and public health nursing	44,650
Rural health	103,475
Vital statistics (including marriage and divorce statistics and prevention of blindness)	35,515
Tuberculosis sanatoria	313,200
State aid to local tuberculosis sanatoria	34,000
Orthopedic treatment	21,250

Publications issued by health department:
Monthly bulletin.
Annual report.

WASHINGTON STATE DEPARTMENT OF HEALTH

Board of health:
E. R. Coffey, M. D., director of health, chairman, Seattle.
Ralph Hendricks, M. D., Spokane.
Alexander Peacock, M. D., Seattle.
H. E. Wight, D. D. S., Yakima.
E. N. Hutchinson, D. V. M., Olympia.
Francis D. Rhoads, secretary, Seattle.
Department of health:
Office of the director:
***E. R. Coffey, M. D.**, director, Seattle
*Anna R. Moore, R. N., advisory public health nurse, Seattle.
*Archie J. Richardson, health education advisor, Seattle.
Division of laboratories and epidemiology:
*A. J. Simpson, M. D., epidemiologist, Seattle.
Division of public health engineering:
*Roy M. Harris, C. E., public health engineer, Seattle.
Division of maternal and child hygiene:
*Albert McCown, M. D., Seattle.
Division of vital statistics:
*Francis D. Rhoads, State registrar, Seattle.

Appropriation for 2 years ending March 31, 1937:

From general fund:	
Salaries and wages	$75,000
Operations	40,000
From fisheries fund:	
For industrial pollution studies	8,500
For oyster sanitation studies	5,500
Total	129,000

WEST VIRGINIA DEPARTMENT OF HEALTH

Public health council:
A. H. Hoge, M. D., president, Bluefield.
S. W. Price, M. D., Scarbro.
B. H. Swint, M. D., Charleston.
W. C. D. McCuskey, M. D. Wheeling.
Walter E. Vest, M. D., Huntington.
M. T. Morrison, M. D., Sutton.
W. E. Minghini, D. D. S., Martinsburg.
Arthur E. McClue, M. D., secretary and commissioner of health, Charleston.
Executive health officer:
***Arthur E. McClue, M. C.**, commissioner of health, Charleston.
Division of sanitary engineering:
*Ellis S. Tisdale, chief engineer, Charleston.
*John B. Harrington, B. E., assistant engineer, Charleston.
*A. J. Kranaskas, C. E., assistant engineer, Charleston.
Division of vital statistics:
*Franklin H. Reeder, M. D., acting director, Charleston.
Division of child hygiene:
*Thomas H. Blake, M. D., director, Charleston.
State advisory nurse:
*Mrs. Laurene C. Fisher, R. N., Charleston.
Division of preventable diseases:
*Arthur E. McClue, M. D., acting director, Charleston.
Division of venereal diseases:
*Mrs. Virginia Dye Virgin, associate director, Charleston.
Division of rural sanitation:
*Albert M. Price, M. D., director, Charleston.
Hygienic laboratory:
*Miss Katherine Cox, director, Charleston.
*Margaret K. Riffe, technician, Charleston.
*J. Roy Monroe, technician, Charleston.
*Mark C. Harp, technician, Charleston.
Bureau of public health education:
*Miss Dorothea Campbell, director, Charleston.

Appropriation for fiscal year ending June 30, 1936:

For general use	$120,275
Fees, if collected	10,800
Transferred from barbers and beauticians fund	26,500
Total	157,575

Publications:
Annual report.

WISCONSIN STATE BOARD OF HEALTH

Board of health:
Mina B. Glasier, M. D., president, Bloomington.
Joseph Dean, M. D., vice president, Madison.
Stephen Cahana, M. D., Madison.
G. Windesheim, M. D., Kenosha.
J. J. Seelman, M. D., Milwaukee.
H. H. Ainsworth, M. D., Birchwood.
C. A. Harper, M. D., State health officer, Madison.
Executive health officer:
***C. A. Harper, M. D.**, State health officer, Madison
Assistant State health officer:
*G. W. Henika, M. D., Madison.
Deputy State health officers.
*G. E. Hoyt, M. D., Milwaukee.
*V. A. Gudex, M. D., Oshkosh.
*F. P. Daly, M. D., Chippewa Falls.
*R. L. Frisbie, M. D., Rhinelander.
Bureau of vital statistics:
*C. A. Harper, M. D., State registrar, Madison.
*L. W. Hutchcroft, statistician, Madison.
Bureau of communicable diseases:
*H. M. Guilford, M. D., director, Madison.
Bureau of sanitary engineering:
*L. F. Warrick, State sanitary engineer, Madison.
*O. J. Muegge, assistant sanitary engineer, Madison.
*E. J. Beatty, assistant sanitary engineer, Madison.
*J. M. Holderby, assistant sanitary engineer, Madison.
*F. J. Tulley, chemical engineer, Madison.
Bureau of education:
*John Culnan, director, Madison.
Bureau of child welfare:
*Amy Louise Hunter, M. D., director, Madison.
*Frances Cline, M. D., child-health physician, Madison.
*Margaret Nelson, M. D., child-health physician, Madison.
*Elizabeth Taylor, M. D., child-health physician, Madison.
*Helen Thayer, organizer of infant hygiene courses, Madison.
Bureau of public-health nursing:
*Cornelia Van Kooy, R. N., director, Madison.
*Martha Jenny, R. N., field advisory nurse, Madison.
*Maude Tollefson, R. N., advisory public-health nurse.

Bureau of nursing education:
*Barbara A. Thompson, R. N., director, Madison.
Bureau of plumbing and domestic sanitary engineering:
*Frank R. King, State domestic sanitary engineer, Madison.
Bureau of social hygiene:
*H. M. Guilford, M. D., director, Madison.
*Aimee Zillmer, lecturer, Madison.
*D. M. Warner, lecturer, Madison.
Laboratory service:
*W. D. Stovall, M. D., director, State laboratories, Madison.
*M. S. Nichols, chemist, State laboratory, Madison.
*Anna Brandsmark, director, branch laboratory, Rhinelander.
*Mildred Englebert, director, cooperative laboratory, Beloit.
*Marjorie Bates, director, cooperative laboratory, Oshkosh.
*Henry Miller, director, cooperative laboratory, Kenosha.
*Josephine Foote, director, cooperative laboratory, Wausau.
*Martha Thompson, director, cooperative laboratory, Superior.
*Clarissa McFetridge, director, cooperative laboratory, Green Bay.
*Elizabeth Mathewson, director, cooperative laboratory, Sheboygan.

Appropriations for each of fiscal years ending June 30, 1936 and 1937:

General administration	$135,000
Licensing:	
95 percent of the receipts; estimated at:	
Embalmers	8,075
Hotels and restaurants	34,105
Barbers	22,515
Plumbers	$20,235
Beauty parlors	25,600
Nurses	15,770
To each county employing a county public health nurse, $1,000 per annum.	
Bureau of child welfare and public health nursing	43,350
Enforcement of medical practices act	2,500
Specific appropriations	180,850
Estimated appropriations	126,300

Publications issued by health department:
Quarterly bulletin.
Biennial report.
Other bulletins on communicable diseases.

WYOMING DEPARTMENT OF PUBLIC HEALTH

Board of health:
Earl Whedon, M. D., president, Sheridan.
Evald Olson, M. D., vice president, Meeteetse.
E. W. DeKay, M. D., Laramie.
N. E. Morad, M. D., Casper.
G. M. Anderson, M. D., secretary and executive officer, Cheyenne.
Executive health officer:
*G. M. Anderson, M. D., State health officer, Cheyenne.

Appropriations for biennial period ending Mar. 31, 1937:

State board of health	$9,000
Salary of secretary	8,000
Maternal and infant welfare	5,000
Bureau of vital statistics	3,580
Total	25,580

DEATHS DURING WEEK ENDED NOV. 30, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 30, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	7,937	7,799
Deaths per 1,000 population, annual basis	11.1	10.9
Deaths under 1 year of age	498	532
Deaths under 1 year of age per 1,000 estimated live births	46	50
Deaths per 1,000 population, annual basis, first 48 weeks of year	11.3	11.3
Data from industrial insurance companies:		
Policies in force	67,800,258	67,063,893
Number of death claims	9,984	11,133
Death claims per 1,000 policies in force, annual rate	7.7	8.7
Death claims per 1,000 policies, first 48 weeks of year, annual rate	9.5	9.8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended Dec. 7, 1935, and Dec. 8, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 7, 1935, and Dec. 8, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934
New England States:								
Maine	1	4	-------	1	358	14	0	0
New Hampshire	-------	2	-------	-------	-------	9	0	0
Vermont	3	3	-------	-------	21	-------	0	0
Massachusetts	13	17	-------	-------	80	117	1	2
Rhode Island	-------	3	-------	-------	78	3	0	0
Connecticut	9	3	9	1	110	272	0	0
Middle Atlantic States:								
New York	52	47	[1] 13	[1] 58	496	930	8	7
New Jersey	23	29	20	43	16	53	2	0
Pennsylvania	81	70	-------	-------	109	875	2	5
East North Central States:								
Ohio	77	106	11	12	72	128	2	3
Indiana	77	49	36	41	24	185	5	1
Illinois	93	62	33	21	32	686	7	3
Michigan	26	15	5	2	32	161	3	0
Wisconsin	2	9	54	5	70	140	1	1
West North Central States:								
Minnesota	6	18	-------	-------	57	219	2	1
Iowa	18	9	-------	4	3	600	1	2
Missouri	49	42	136	51	8	95	3	0
North Dakota	2	2	8	-------	5	49	0	1
South Dakota	2	1	-------	1	4	66	0	0
Nebraska	4	19	-------	-------	30	103	1	0
Kansas	18	6	9	-------	4	240	5	2
South Atlantic States:								
Delaware	-------	-------	-------	-------	111	1	0	0
Maryland [2]	19	22	11	8	20	134	6	0
District of Columbia	33	11	3	-------	3	5	2	0
Virginia [3]	48	75	-------	-------	27	164	5	2
West Virginia	35	40	33	25	4	245	3	1
North Carolina [4]	73	74	13	18	5	355	2	2
South Carolina	6	14	228	278	-------	1	0	0
Georgia [4, 5]	27	23	57	-------	-------	-------	0	0
Florida	19	19	2	2	-------	5	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 7, 1935, and Dec. 8, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934
East South Central States:								
Kentucky	48	64	34	38	6	149	4	1
Tennessee	38	54	59	42	2	23	3	1
Alabama [4]	35	31	130	60	13	126	1	2
Mississippi [2]	15	20					0	1
West South Central States:								
Arkansas	20	15	54	13	2	2	1	1
Louisiana	33	38	7	14	34	8	0	0
Oklahoma [5]	24	22	23	60	1	3	0	0
Texas [4]	123	79	173	131	4	18	6	6
Mountain States:								
Montana	2	17	12	6	5	66	0	0
Idaho		1	1		7	3	1	0
Wyoming	1	2	2		6	10	0	0
Colorado	6	14			8	322	1	2
New Mexico	3	3		2	2	122	1	0
Arizona	9	1	27	26	2	5	1	0
Utah [2]						14	0	0
Pacific States:								
Washington	3	1	2		128	75	3	0
Oregon	1		15	37	248	14	2	0
California	22	43	29	46	241	124	3	3
Total	1,199	1,199	1,249	1,046	2,488	6,939	88	50
First 49 weeks of year	35,372	37,702	114,129	59,506	713,558	704,673	5,213	2,143

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934
New England States:								
Maine	11	0	34	13	0	0	6	14
New Hampshire	1	0	6	16	0	0	0	0
Vermont	1	0	14	7	0	0	0	0
Massachusetts	5	0	250	153	0	0	1	2
Rhode Island	1	0	20	12	0	0	0	0
Connecticut	2	0	33	36	0	0	1	1
Middle Atlantic States:								
New York	10	3	553	466	0	0	7	13
New Jersey	4	1	110	135	0	0	3	1
Pennsylvania	5	0	519	600	0	0	6	31
East North Central States:								
Ohio	2	6	429	524	0	0	4	4
Indiana	0	0	289	157	1	1	3	1
Illinois	1	0	512	554	9	2	10	26
Michigan	0	3	291	286	1	0	1	9
Wisconsin	1	6	389	382	5	32	6	3
West North Central States:								
Minnesota	0	0	298	122	4	14	0	1
Iowa	1	0	131	67	10	2	15	3
Missouri	2	0	132	97	2	0	5	15
North Dakota	0	0	84	41	1	0	2	0
South Dakota	0	0	67	23	21	3	1	0
Nebraska	0	0	132	40	66	8	1	1
Kansas	0	0	174	63	10	1	5	1
South Atlantic States:								
Delaware	0	0	14	5	0	0	1	0
Maryland [2]	0	1	88	92	0	0	8	4
District of Columbia	0	0	12	24	0	0	2	0
Virginia [3]	1	1	43	92	0	3	9	14
West Virginia	0	1	101	149	0	0	1	14
North Carolina [4]	5	2	87	124	1	0	3	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 7, 1935, and Dec. 8, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934	Week ended Dec. 7, 1935	Week ended Dec. 8, 1934
South Atlantic States—Continued.								
South Carolina	2	0	8	5	0	0	1	0
Georgia [4] [5]	0	0	26	12	0	0	18	4
Florida	0	0	5	10	0	0	3	0
East South Central States:								
Kentucky	2	0	59	101	0	0	11	16
Tennessee	3	0	74	88	0	3	7	13
Alabama [4]	0	1	16	30	0	0	2	2
Mississippi [2]	0	0	29	30	0	0	15	9
West South Central States:								
Arkansas	0	0	14	------	0	0	3	5
Louisiana	2	3	19	17	0	0	12	16
Oklahoma [6]	1	0	23	36	2	2	8	17
Texas [4]	4	4	64	43	1	6	17	21
Mountain States:								
Montana	0	0	159	14	70	0	0	1
Idaho	0	0	43	5	0	0	2	1
Wyoming	0	0	141	16	2	10	0	4
Colorado	0	0	130	131	46	0	0	0
New Mexico	0	0	35	32	0	0	11	7
Arizona	0	0	24	17	0	0	0	1
Utah [2]	0	0	74	38	0	0	0	0
Pacific States:								
Washington	1	3	85	55	50	30	2	0
Oregon	0	0	63	58	2	1	5	2
California	6	21	289	228	5	0	7	10
Total	74	56	6,194	5,246	309	118	225	293
First 49 weeks of year	10,575	7,117	233,342	198,971	6,994	4,742	16,964	20,286

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended Dec. 7, 1935, Virginia, 2 cases.
[4] Typhus fever, week ended Dec. 7, 1935, 19 cases, as follows: North Carolina, 1; Georgia, 6; Alabama, 7; Texas, 5.
[5] Dengue, week ended Dec. 7, 1935, Georgia, 12 cases.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
September 1935										
Hawaii Territory	1	10	2	--------	6	--------	0	--------	0	3
Puerto Rico	--------	106	46	995	12	1	0	--------	0	81
November 1935										
Arkansas	1	53	62	73	5	18	--------	42	4	13
Connecticut	4	10	21	--------	167	--------	24	151	0	4
Delaware	--------	4	1	--------	300	--------	1	54	0	5
District of Columbia	18	106	4	--------	6	--------	2	41	0	4
Florida	1	60	11	64	5	4	0	33	0	6
Indiana	6	292	104	--------	41	--------	9	684	11	11
Nebraska	5	50	1	--------	94	--------	0	361	160	2
New Mexico	2	23	9	3	23	2	2	91	0	58
South Carolina	--------	195	727	753	7	79	3	36	0	19
Vermont	--------	4	--------	--------	203	--------	3	39	0	4

Summary of monthly reports from States—Continued

September 1935

	Cases
Hawaii Territory:	
Chicken pox	8
Leprosy	3
Mumps	58
Typhus fever	3
Whooping cough	62
Puerto Rico:	
Chicken pox	11
Dysentery	24
Filariasis	5
Leprosy	2
Mumps	23
Ophthalmia neonatorum	9
Puerperal septicemia	5
Tetanus	6
Tetanus, infantile	6
Trachoma	5
Whooping cough	102
Yaws	3

November 1935

	Cases
Actinomycosis:	
Connecticut	1
Anthrax:	
Delaware	1
Chicken pox:	
Arkansas	116
Connecticut	515
Delaware	96
District of Columbia	67
Florida	17
Indiana	407
Nebraska	195
New Mexico	122
South Carolina	50
Vermont	336
Conjunctivitis:	
New Mexico	4
Dengue:	
South Carolina	4
Diarrhea:	
South Carolina	268
Dysentery:	
Connecticut (bacillary)	1
Florida (amoebic)	1
New Mexico (amoebic)	4
New Mexico (bacillary)	1
New Mexico (unspecified)	1
Epidemic encephalitis:	
Connecticut	3
South Carolina	3
German measles:	
Connecticut	50
Delaware	1
New Mexico	5
Vermont	25
Hookworm disease:	
South Carolina	77
Lead poisoning:	
Connecticut	1
Mumps:	
Arkansas	73
Connecticut	200
Delaware	4
Florida	47
Indiana	103
Nebraska	64
New Mexico	87
South Carolina	74
Vermont	43
Ophthalmia neonatorum:	
New Mexico	2
South Carolina	5
Paratyphoid fever:	
Connecticut	6
South Carolina	5
Puerperal septicemia:	
New Mexico	2
Rabies in animals:	
Connecticut	1
Indiana	45
New Mexico	1
South Carolina	42
Septic sore throat:	
Connecticut	6
New Mexico	2
South Carolina	5
Tetanus:	
Delaware	1
South Carolina	1
Trachoma:	
New Mexico	2
Trichinosis:	
Connecticut	2
Typhus fever:	
South Carolina	2
Undulant fever:	
Arkansas	1
Connecticut	13
New Mexico	1
Vermont	5
Whooping cough:	
Arkansas	30
Connecticut	356
Delaware	14
District of Columbia	5
Florida	26
Indiana	150
Nebraska	54
New Mexico	38
South Carolina	63
Vermont	130

WEEKLY REPORTS FROM CITIES

City reports for week ended Nov. 30, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	1	2	0	0	2	10	24
New Hampshire:											
Concord	0		0	0	0	2	0	0	0	0	12
Nashua	0			0		0	0		0	0	
Vermont:											
Barre	0		0	0	0	0	0	0	0	0	2
Burlington	1		0	0	0	0	0	0	0	0	16
Rutland	0		0	0	0	3	0	0	0	0	4
Massachusetts:											
Boston	5		0	10	18	40	0	6	1	10	189
Fall River	0		0	0	0	1	0	2	0	0	17
Springfield	0		0	3	0	1	0	2	1	4	35
Worcester	1		0	1	3	15	0	1	0	2	50
Rhode Island:											
Providence	0		0	0	3	4	0	3	0	12	49
Connecticut:											
Bridgeport	3	6	0	0	2	0	0	0	0	1	19
Hartford	0		0	0	2	0	0	0	0	20	44
New Haven	0		0	0	2	0	0	0	0	6	41
New York:											
Buffalo	1		0	10	11	75	0	4	0	7	121
New York	34	14	0	84	101	105	0	77	5	129	1,406
Rochester	0		0	1	6	3	0	1	0	4	68
Syracuse	0		1	0	3	4	0	0	0	4	29

City reports for week ended Nov. 30, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New Jersey:											
Camden	0	1	0	0	0	5	0	3	0	1	35
Newark	0	3	0	1	6	31	0	7	0	37	84
Trenton	0	------	0	0	0	3	0	0	0	3	36
Pennsylvania:											
Philadelphia	6	4	2	45	14	91	0	13	2	102	384
Pittsburgh	7	------	4	13	20	80	0	4	1	13	160
Reading	0	------	0	0	2	0	0	0	0	0	28
Scranton	0	------	------	0	------	6	0	------	0	4	------
Ohio:											
Cincinnati	20	------	1	1	4	15	0	9	0	1	134
Cleveland	1	32	1	3	14	22	0	18	0	49	191
Columbus	5	2	2	0	2	16	0	2	0	0	76
Toledo	1	2	2	1	2	6	0	2	0	11	66
Indiana:											
Anderson	1	------	0	0	4	3	0	1	0	4	12
Fort Wayne	21	------	0	0	0	9	0	0	0	0	22
Indianapolis	7	------	0	3	15	20	0	7	1	11	94
Muncie	0	------	0	1	1	3	0	1	0	0	8
South Bend	1	------	0	0	0	5	0	0	0	0	13
Terre Haute	0	------	0	0	0	1	0	0	0	0	24
Illinois:											
Alton	4	------	0	0	0	0	0	0	0	0	8
Chicago	15	3	2	13	34	166	0	39	2	122	690
Elgin	0	------	0	0	1	4	0	0	0	0	8
Springfield	0	------	0	0	2	7	0	1	0	2	31
Michigan:											
Detroit	23	5	0	5	20	61	0	13	0	170	243
Grand Rapids	0	------	0	3	2	5	0	0	0	6	29
Wisconsin:											
Kenosha	0	------	0	0	0	5	0	0	0	5	11
Milwaukee	0	1	1	0	2	57	0	6	0	73	80
Racine	0	------	0	2	1	14	0	0	0	4	16
Superior	0	------	0	1	0	4	0	0	0	0	8
Minnesota:											
Duluth	0	------	0	0	1	1	0	0	0	0	23
Minneapolis	4	------	0	1	4	97	0	1	0	5	91
St. Paul	0	------	0	5	3	45	0	1	0	5	53
Iowa:											
Cedar Rapids	0	------	------	0	------	3	0	------	0	2	------
Davenport	0	------	------	0	------	5	0	------	0	0	------
Des Moines	2	------	------	0	------	4	0	------	2	0	34
Sioux City	0	------	------	0	------	6	0	------	0	0	------
Waterloo	4	------	------	0	------	2	0	------	0	0	------
Missouri:											
Kansas City	2	------	0	1	7	8	0	6	0	1	100
St. Joseph	3	------	0	0	7	1	0	2	0	0	60
St. Louis	23	------	2	2	10	36	0	6	0	6	220
North Dakota:											
Fargo	0	------	0	0	0	5	0	0	0	1	4
Grand Forks	0	------	------	0	------	0	0	------	0	0	------
Minot	0	------	0	0	0	7	0	0	0	0	4
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	0	------
Nebraska:											
Omaha	4	------	0	2	3	90	4	5	0	0	57
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	1	0	4
Topeka	0	------	0	0	6	5	0	1	0	3	24
Wichita	0	------	0	4	4	1	0	1	0	1	27
Delaware:											
Wilmington	1	------	0	1	3	0	0	1	0	7	17
Maryland:											
Baltimore	4	2	1	0	12	35	0	10	7	9	218
Cumberland	3	------	1	0	0	2	0	0	0	0	10
Frederick	0	1	0	0	1	0	0	0	0	0	7
District of Columbia:											
Washington	22	------	0	1	12	13	0	10	2	1	141
Virginia:											
Lynchburg	2	------	0	0	0	0	0	1	0	1	6
Norfolk	0	------	0	1	2	8	0	2	0	0	27
Richmond	1	------	1	2	3	1	0	3	0	0	52
Roanoke	0	------	0	0	4	1	0	0	0	1	23

City reports for week ended Nov. 30, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
West Virginia:											
Charleston	3	------	0	0	2	1	0	2	0	0	33
Huntington	3	------	------	0	------	1	0	------	0	0	------
Wheeling	0	------	0	0	3	2	0	1	0	0	17
North Carolina:											
Gastonia	0	------	0	0	2	0	0	0	0	0	9
Raleigh	0	------	0	0	1	0	0	1	0	0	15
Wilmington	0	------	0	1	2	0	0	1	0	1	13
Winston-Salem	2	1	0	0	0	2	0	1	0	0	11
South Carolina:											
Charleston	1	7	1	0	0	3	0	1	0	0	31
Florence	0	------	0	0	1	0	0	0	0	0	7
Greenville	0	------	0	0	1	0	0	0	0	0	11
Georgia:											
Atlanta	4	4	1	0	9	19	0	7	0	0	94
Brunswick	0	------	0	0	1	0	0	0	0	0	8
Savannah	1	------	0	0	7	4	0	2	1	0	41
Florida:											
Miami	0	------	0	0	1	1	0	1	0	2	28
Tampa	4	------	0	0	1	1	0	0	0	0	25
Kentucky:											
Ashland	2	------	------	0	------	0	0	------	0	0	------
Covington	2	------	0	0	2	1	0	0	0	0	2
Lexington	0	------	0	0	2	0	0	2	0	0	21
Louisville	6	------	1	0	10	13	0	3	0	5	76
Tennessee:											
Knoxville	2	4	0	0	5	13	0	3	0	0	36
Memphis	3	------	0	1	10	4	0	7	1	1	85
Nashville	4	------	1	0	5	0	0	2	0	0	49
Alabama:											
Birmingham	3	------	1	0	5	2	0	0	1	0	73
Montgomery	2	------	------	0	------	0	0	------	0	0	------
Arkansas:											
Fort Smith	1	------	------	0	------	2	0	------	0	0	------
Little Rock	0	------	0	0	3	1	0	0	0	0	3
Louisiana:											
Lake Charles	2	------	0	0	0	0	0	0	0	0	5
New Orleans	12	------	0	3	12	3	0	15	1	1	169
Shreveport	4	------	0	1	10	2	0	4	0	0	54
Texas:											
Dallas	14	------	0	0	12	10	0	2	1	2	86
Fort Worth	6	------	0	0	9	4	0	1	0	0	41
Galveston	6	------	0	0	1	1	0	2	0	0	16
Houston	12	------	0	1	12	2	0	1	0	0	66
San Antonio	4	------	1	0	7	0	0	11	0	0	53
Montana:											
Billings	1	------	0	0	1	23	0	0	0	0	5
Great Falls	0	------	0	0	0	1	0	0	0	0	4
Helena	0	------	0	0	1	2	0	0	0	1	2
Missoula	0	------	0	0	3	37	0	1	0	0	12
Idaho:											
Boise	0	------	0	1	0	4	0	0	0	0	5
Colorado:											
Colorado Springs	0	------	0	1	2	6	0	1	0	1	10
Denver	5	------	0	9	7	14	0	5	0	3	87
Pueblo	0	------	0	0	1	26	0	0	0	0	8
New Mexico:											
Albuquerque	0	------	0	1	2	8	0	1	0	0	10
Utah:											
Salt Lake City	0	------	0	1	1	40	0	2	0	1	37
Washington:											
Seattle	0	------	1	7	9	30	0	4	2	2	83
Spokane	0	2	2	10	7	2	4	1	0	2	37
Tacoma	0	------	0	0	1	3	0	0	0	0	29
Oregon:											
Portland	0	2	0	23	8	24	0	0	0	0	88
Salem	0	------	------	0	------	0	0	------	0	0	------
California:											
Los Angeles	20	12	1	26	30	43	0	11	3	16	302
Sacramento	7	------	0	1	1	18	0	0	------	2	24
San Francisco	0	4	0	18	16	12	0	7	0	24	178

City reports for week ended Nov. 30, 1935—Continued

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Polio-myelitis cases
Maine:			
Portland	1	0	0
New Hampshire:			
Nashua	0	0	1
Massachusetts:			
Boston	3	0	1
Rhode Island:			
Providence	0	0	1
Connecticut:			
Bridgeport	0	0	1
Hartford	0	1	0
New Haven	0	0	1
New York:			
New York	2	2	3
Syracuse	1	0	1
New Jersey:			
Newark	0	0	1
Pennsylvania:			
Philadelphia	1	0	2
Ohio:			
Cleveland	1	1	0
Toledo	0	0	1
Illinois:			
Chicago	8	2	2
Springfield	2	0	0
Michigan:			
Detroit	1	0	3
Wisconsin:			
Milwaukee	1	0	0
Minnesota:			
Minneapolis	0	0	1
Missouri:			
St. Louis	2	0	0
Maryland:			
Baltimore	1	2	3
Cumberland	0	1	0
District of Columbia:			
Washington	8	3	0
Kentucky:			
Louisville	1	0	1
Tennessee:			
Knoxville	0	2	0
Memphis	1	0	0
Louisiana:			
Shreveport	0	1	0
Texas:			
Fort Worth	1	0	0
Houston	0	0	1
San Antonio	0	0	1
Colorado:			
Colorado Springs	0	1	0
Denver	1	0	0
New Mexico:			
Albuquerque	1	0	0
Washington:			
Seattle	1	1	0
Oregon:			
Portland	1	1	0
California:			
Los Angeles	1	1	2

Epidemic encephalitis.—Cases: Kansas City, Mo., 1; San Francisco, 1.
Pellagra.—Cases: Dallas, 2; San Antonio, 1.
Typhus fever.—Cases: Savannah, 1. Deaths: New York, 1.

FOREIGN AND INSULAR

CUBA

Habana—Communicable diseases—4 weeks ended November 23, 1935.—During the 4 weeks ended November 23, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	2	1	Tuberculosis	[illegible]	9
Diphtheria	24	1	Typhoid fever	[1] 63	8
Malaria	[1] 224	6			

[1] Includes imported cases.

Provinces—Notifiable diseases—4 weeks ended November 16, 1935.—During the 4 weeks ended November 16, 1935, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer		2		3		2	7
Chicken pox				2			2
Diphtheria		3	4		2		9
Hookworm disease				1		79	80
Leprosy			1		3		4
Malaria	198	243	69	483	1,062	1,030	3,085
Measles		1			6	1	8
Poliomyelitis						4	4
Tuberculosis	2	1	5	17	13	3	41
Typhoid fever	1	52	5	37	41	18	154

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for November 29, 1935, pages 1701–1717. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued December 27, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Typhus Fever

Egypt—Suez.—During the week ended November 23, 1935, 1 death from typhus fever was reported at Suez, Egypt.

Irish Free State—Waterford County—Youghal No. 2.—During the week ended November 23, 1935, 1 case of typhus fever was reported in Youghal District No. 2, Waterford County, Irish Free State.

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Sanitary Reports and Statistics, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 39; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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THE RURAL MIDWIFE: HER SOCIAL AND ECONOMIC BACKGROUND AND HER PRACTICES AS OBSERVED IN BRUNSWICK COUNTY, VA.[1]

By JOSEPHINE L. DANIEL, *Research Worker in Child Hygiene and Public Health Nursing*, and WILLIAM M. GAFAFER, *Senior Statistician, United States Public Health Service*

INTRODUCTION

It is not infrequently stated that the midwife has seriously impeded the progress of the practice of obstetrics, and that her incompetence is a contributory cause of high infant and maternal mortality. Indeed she was for sometime designated a necessary evil. In connection with previous investigations conducted by the United States Public Health Service in the rural county of Brunswick, Va., it was observed that almost 75 percent of the births reported in the county[2] are regularly attended by midwives and that a comparatively high infant and maternal mortality prevailed. Because of these conditions the question of a study dealing with the rural midwife was raised. Since the State and county departments of health were in sympathy with public health investigations generally, and the midwives themselves were accustomed to supervision by the county health department and were always cooperative, the decision was made to initiate a study of the rural midwife in Brunswick County.

More specifically, it was purposed to determine the social and economic background of the rural midwife; to ascertain her current practices, first, by means of direct observation of her performances, and, second, by means of interviews with mothers following the termination of midwife care; and, finally, from the collected information to develop a set of criteria for the future selection and instruction of the rural midwife.

A list of 42 Brunswick County midwives was supplied by the Brunswick-Greensville bicounty health department. At the initial

[1] From the Office of Child Hygiene Investigations, United States Public Health Service.

[2] The total number of reported births in 1933 was 511. Of these physicians reported 128; midwives, 373, and friends and neighbors, 10. (Bureau of Vital Statistics, Virginia State Department of Health.)

visit to the home of each midwife a brief explanation of the purpose of the study was made; data concerning the midwife, her equipment, and her license to practice were obtained; and she was informed that the investigator (J. L. D.) desired to see her at work and that this required the investigator to be present as a silent observer. During this visit, furthermore, an appointment was made for a return visit to observe whatever type of case the midwife might have at that time.

In the matter of the direct observation of midwife practices the same difficulty arises as in all other investigations requiring the observation of human beings at work, namely, possible changes in practices caused by the presence of the investigator. To have the observed practices correspond as closely as possible with those performed without observation, it is essential that any embarrassment or fear of criticism on the part of the observed be dispelled by the previous establishment of an amicable relationship between the investigator and those whose practices are to be observed. In the present study this relationship was easily established, because the midwives immediately identified the investigator with the county nurses whom they regarded with admiration and affection; thus it is believed that the practices as observed were probably closely similar to those performed under ordinary circumstances.

PERSONAL DATA, EQUIPMENT, AND LICENSES OF 42 MIDWIVES

Age, color, marital status, and birthplace.—The ages of the 42 midwives ranged from 38 to about 88 years, with 35 approximately equally distributed among the 3 decades included between 50 and 80 years. Forty were colored. All had been married at least once. Two have had no children, 21 have had from 2 to 9, and 19 have had from 10 to 21. One midwife was born in Germany, 30 were born in Brunswick County, and the remainder were born within a radius of 200 miles of the county.

Morals.—Certain moral requirements have been set down by the Virginia State Department of Health. These concern conscientiousness, responsibility, and disposition. All of the 42 midwives are conscientious and faithful insofar as their limited knowledge extends. They are willing to attend women in labor, oftentimes walking long distances at night with the knowledge that they will receive little or no pay for their services. Their reasons for practicing are also indicative of their conscientiousness—because the physicians or neighbors need her; "to help others"; her own experiences during childbirth; and "called by the Lord."

Education, training, and experience.—Over half of the midwives said that they could neither read nor write. Of the 19 who attended school, 11 had gone through the fourth grade. All members of the group stated that they had attended classes in midwifery conducted by the health department of the State or the county. The number of classes attended could not be ascertained. In respect of experience, over half had practiced midwifery for 30 or more years; none had practiced less than 8 years.

Health.—None stated that she had had a physical examination. Of the 38 who had had a Wassermann test, 4 were positive.

Cleanliness.—According to the judgment of the county nurse, about half of the group was "clean", and the same proportion of homes was considered "clean."

Economic status.—It was estimated that 1 was comfortable, 30 were moderate, 10 were poor, and 1 was very poor.

Equipment.—Three of the 35 who had bags, had equipment that was complete, clean, and ready for use.

Licenses.—Twenty-nine had a Virginia license to practice midwifery, 6 who were interviewed away from their homes had their bags with them, but no licenses, 6 stated the license was lost, and 1 midwife was not recorded.

WHAT THE MIDWIFE SAID THAT SHE TEACHES HER PRENATAL PATIENT

Each midwife was asked what she teaches her prenatal patients regarding preparation for delivery, diet, elimination, rest, exercise, clothes, and breast care. No effort was made to determine where she obtained her knowledge. This information was obtained from 41 midwives, one interview being incomplete.

Preparation.—Of the 41 midwives, 35 mentioned delivery pads, "pieces" or perineal pads, baby's layettes, basins, or delivery linen.

Diet.—Cereal was mentioned by 10, milk by 11, water and vegetables by 12, fruit by 4, and 6 advised no meat.

Elimination.—Bowel elimination was believed important by 20 midwives. The remedy suggested by almost all was salts.

Rest, exercise, and clothes.—A negligible one or two considered these of any importance.

Breast care.—About one-third advised washing, pulling out the nipples, or rubbing with cold cream.

FORTY-SIX PRENATAL VISITS BY 14 DIFFERENT COLORED MIDWIVES

Personal data.—The para of the 46 mothers visited ranged from 1 to 15. Fifteen were expecting their first baby and 1 her fifteenth. Thirty-nine were colored. Three were unmarried and 2 had been married since the beginning of the prenatal period. Few midwives made any reference to the month of pregnancy, and many of the mothers were confused when they were asked the date of the last menstruation. The investigator estimated that 1 pregnancy was in the fifth month, 26 in the sixth to the eighth, and 19 were very near the delivery date.

Eleven of the 46 mothers were living with their parents, the remainder having homes of their own. In respect of economic status, 1 was classified as comfortable, 14 as moderate, 26 as poor, and 5 as very poor.

Since the particular visit observed might have been influenced by previous visits and by the reasons for reporting the pregnancy, data were collected regarding these two subjects. In respect of the first, it was found that 26 of the 46 had been seen one or more times prior to the observation visit and 18 were seen for the first time; no data were recorded for 2. With regard to the reasons for reporting the pregnancy, 31 mothers were "engaged for delivery," 3 had not reported the pregnancy to the midwife but the midwife had heard of the pregnancy and she solicited the case at the observation visit, 3 lived in the household of the midwife, and 2 reported their condition to the midwife because they felt badly; data for 2 were not recorded.

Preparation for delivery.—Two of six mothers were advised to have a clean room. One was advised to have a crib available. Nineteen were advised to make delivery pads; 1 midwife gave a demonstration of how they should be made. Gowns were advised to 3, "pieces" or perineal pads to 8, absorbent

cotton to 5, safety pins to 5, sanitary belt, douche pan, and pitchers were each mentioned once, and basins were advised to 2. Rubber sheeting or oilcloth, lysol, or an enema can were not mentioned once.

With regard to supplies for the baby, 11 mothers were advised to have shirts, 8 were given advice regarding binders, 6 regarding wrappers or slips, and 10 regarding diapers. It must be recalled in this connection that 15 of the 46 mothers were expecting their first baby.

Diet.—References to diet were made to 33 mothers. Milk was suggested to 17, 1 midwife explaining to 1 mother that milk would make the baby have "good bones and good teeth." Vegetables were suggested to 16, fruit to 5, cereals to 2, and no meat to 7.

Elimination.—Of the 46 mothers, 35 were asked or advised about bowel elimination. Salts were suggested to 24, vegetables to 1, and fruit to 3. Six mothers were questioned, but nothing was advised. Sixteen were advised to drink water.

Rest, sleep, exercise, and clothes.—More rest was advised to seven mothers. Sleep was discussed with 3, 1 of whom was advised to sleep with windows open. Exercise was mentioned to 21. Fifteen were told not to work too long or to do heavy work. Two were advised not to "reach up." Almost all midwives believe that a pregnant woman should never put her hands over her head, since this causes the cord to wind around the unborn child. Walking every day was suggested to 3, "even though you don't feel good, 'cause it makes an easier birth." The wearing of loose clothing was advised to three; no reason was given to the mother for this advice.

Breast care.—Three were advised to bathe the nipples daily during the prenatal period because "when the baby comes and takes hold, it won't feel like he is pulling your toe nails out."

Teeth.—Three mothers were referred to a dentist because they were suffering from aching teeth. No reference was made to dental prophylaxis.

Danger signals.—Among the 46 mothers visited with the midwife, 6 showed some danger signal of pregnancy. One mother each complained of headache, dizziness, spots, and vaginal bleeding; feeling badly all of the time; swelling and bleeding; constant headaches; constant stomach pain; and vaginal bleeding. Two mothers were referred to a physician because of these complaints. The other four should have been but were not.

Attitude of mother toward her pregnancy.—The attitude of each mother toward her pregnancy was recorded because of its possible influence on the midwife's approach to her problem. Five mothers appeared afraid, 29 accepted it as a natural consequence of marriage, 11 appeared happy, and 1 mother neither expressed nor displayed emotion.

Attitude of midwife toward her patient.—Forty-one of the mothers were treated with genuine interest which was extended to the mother in a maternal manner. To the other five mothers only tolerance was shown; these were either extremely poor, with a home crowded with children or the baby expected was illegitimate.

THREE DELIVERIES PERFORMED BY THREE DIFFERENT MIDWIVES

The three midwives had a basin of water and washed their hands prior to delivery, but in all three cases the hands were contaminated before the birth of the child. This same basin was used for washing the perineum in all cases, and in one home the basin was on the floor, which enabled the cat to drink water periodically. Two midwives added lysol to the water and used a handbrush. One midwife wore a white uniform, the second a clean gingham dress, and the third a dirty woolen dress without an apron. All three mothers wore nightgowns;

two were clean and the other was dirty. Two mothers had not been bathed; the third was bathed before the investigator's arrival. One bed had only a dirty mattress which was protected with dirty brown wrapping paper and a dirty cotton blanket; the mother was delivered on her hands and knees; the placenta was delivered after the mother had gotten up on a slop jar. The second mother was delivered on her hands and knees on the floor beside the bed; a folded quilt covered with newspapers protected a bare floor; the placenta was delivered spontaneously after the mother had gotten up on the slop jar; after the delivery of the child and the placenta, the mother was washed and helped into a clean bed. The third mother delivered both child and placenta in a clean, well-protected bed.

No vaginal examination was observed. In the three cases, labor lasted from 2 to 12 hours. No medications were observed to be given, nor injections into the birth canal. Two midwives placed drops of silver nitrate in the eyes after bathing the baby, which was done after the mother had been cleaned and made comfortable in bed. The third midwife placed the drops immediately after cutting the cord. All three births were reported to the local registrar.

CARE OF 20 POSTNATAL CASES AS GIVEN BY 13 DIFFERENT COLORED MIDWIVES

Visits that were observed by the investigator occurred during the first 17 days after delivery, the mean being 6 days. The length of the visit ranged from 15 minutes to 2 hours. Seventeen of the 20 mothers had been visited one or more times by the midwife before delivery; 11 of the 17 appeared to have inadequate supplies.

Condition of baby and mother.—Eighteen babies were living and 2 were dead. Twelve mothers were in bed; of the 8 that were not in bed, 3 were less than 7 days postpartum.

Care of mothers in bed.—Two mothers were given a bed bath and perineal care; 3 were given only perineal care; 7 had had a bath; and 4 reported that they had given their own perineal care before the arrival of the midwife. Neither a bath nor perineal care was mentioned to 2 of the mothers. The two bed baths observed were thorough, and perineal care followed the instructions given in the State department of health manual.

Advice given.—Breast care was not mentioned to 17 mothers, although 1 of this number had lost her baby at birth and needed special advice regarding care; 3 were advised to bathe the nipples with water before each nursing. One mother was questioned regarding kidney elimination. Six received advice regarding diet.

Care of 12 babies less than 8 days old.—Of 12 babies less than 8 days old at the time of the observation visit, 7 were given a full bath and the cords were dressed. The cords of 3 babies were dressed without a bath. Four babies had been bathed, and 1 mother reported care of the cord before the arrival of the midwife. In the majority of cases a clean cloth was scorched on a shovel or on top of the stove for a cord dressing; several midwives had sterile dressings from the State department of health, and 1 used gauze. Baby talcum was generously used under the dressing because, according to the majority of midwives, "it keeps down smells." Three mothers were advised to nurse their babies at regular hours, but no reasons were given. One baby was given a dose of calomel during the visit and the mother was advised to give castor oil the following morning.

Delivery complications.—Five of the 20 mothers had had one or more complications and a physician had been called. One mother had retained the afterbirth; 4 had long, hard labor with little or no progress; and in 1 case the physician was called a second time to retie the bleeding cord.

INTERVIEWS OF 50 MOTHERS FOLLOWING TERMINATION OF MIDWIFE CARE [3]

This material is concerned chiefly with what 50 mothers reported regarding the care given them by 20 different colored midwives during the delivery and postnatal periods. An effort was made also to interview the attendant—a mother, sister, or neighbor—who was present at the delivery; this was possible in about half of the cases. The days of interview occurred at some time between the sixth and about the fortieth day following delivery.

Engagement of midwife prior to confinement, why she was engaged, and in what month of pregnancy.— Of the 50 mothers, 38 had engaged a midwife before delivery. In 24 instances the reason given by the mother was "to be sure of her services", in 4 the midwife urged it, in 3 the reason was "prenatal care", in 2 the mothers "didn't know anyone else", in 1 the public health nurse urged it, and in 4 the mothers answered "don't know." Of these 38 mothers 17 had engaged the midwife within the last month of pregnancy, 17 within 2 to 4 months before delivery, 1 at the beginning of pregnancy, and for 3 this information is unknown.

Time of arrival of midwife.— The midwife arrived before the baby was born in 33 instances, while in 17 instances the baby was delivered spontaneously. Late arrival on the part of the midwife might be explained by the long distances—sometimes 10 miles—frequently required to be covered on foot.

Preparation for delivery by the midwife.—Of the 33 mothers who reported that the midwife arrived before the baby was born, 27 mentioned that the midwives washed their hands prior to delivery, 5 did not know, and 1 said that the midwife did not wash her hands. Eight mothers reported that the field was not washed prior to delivery, and 25 stated that the midwives did wash the field. In 10 cases the midwives gave a vaginal examination to determine progress or position.

Delivery and complications.—Of the 50 mothers, 43 reported normal spontaneous deliveries. Seven required medical aid; in 2 cases, both convulsions, it was not obtainable because of lack of funds. The physician was called at the suggestion of the family in 3 cases, and at the suggestion of the midwife in 4. The complications were 4 cases of long labor and 2 of convulsions; 1 case was apparently normal, but the husband wished medical care for his wife.

Care of eyes.—The eyes of 44 infants were treated with silver nitrate; the mother could not report in 3 cases; in 2 cases the mother or attendant was certain that drops were not used; and 1 infant died soon after birth. In 5 cases the eyes were treated immediately after birth, in 34 while the baby was being dressed, in 1 on the following day, and in 4 the time could not be stated.

Care of cord.—The cords of the 49 infants that lived were dressed as follows: In 15 cases a scorched cloth was used, in 7 a special dressing or cotton, in 5 some gauze, in 4 a clean cloth, and in 11 the kind of dressing was not known. Vaseline, powder and vaseline, lard, olive oil and powder, powder and nutmeg were used on 38 infants; 4 were dressed dry, and 7 were unknown.

Advice given by midwife before leaving the patient.—Of the 50 mothers, 45 were advised regarding bowel elimination, 21 regarding breast care, and 48 were told to wash the perineum.

Return visit of the midwife during the lying-in period.—Of the 50 mothers, 41 stated that the midwife returned during the time that they were in bed. Of the 41, 12 were visited once, 12 were visited 2 or 3 times, 6 were visited 4 or 5 times, 7 were visited 6 times, 2 were visited 8 times, 1 was visited each morning for 9 days, and 1 midwife stayed for 2 weeks and took full charge of the home.

[3] These interviews were made in connection with a midwife study (unpublished) by the Office of Investigations of Public Health Methods, U. S. Public Health Service, the field work was performed by the same investigator (J. L. D.) and in the same county.

It is unfortunate that data regarding the distance between the home of the patient and that of the midwife were not recorded It is the opinion of the investigator that when the distance was less than a half mile the midwife did make regular visits for 8 or 9 mornings.

Type of midwife care given the 41 mothers who had return visits.—Of the 41 mothers, 17 were given complete care, 6 were given only perineal care, and 18 were given no care.

Type of midwife care given to 40 babies.– Of the 40 babies visited by the investigator, 32 were given complete care including dressing of the cord, 6 were given a cord dressing only, and 2 were given no care.

SUMMARY AND CONCLUSIONS WITH CRITERIA FOR THE FUTURE SELECTION AND INSTRUCTION OF THE RURAL MIDWIFE

It is evident that the practice of midwifery in the rural county of Brunswick, Va., must continue; society demands it and the physicians agree that it is essential. A large number of the midwives now practicing there are physically and mentally unfit to practice. Since many of the midwives are not dependent on midwifery as a means of livelihood, the older ones might be encouraged to return their permits and discontinue practice. Since, however, most of the women stated that they entered midwifery because their services were needed, it is probably true that they would not discontinue practice so long as they are needed in the community. Health workers, therefore, should definitely plan to train a younger woman in the neighborhood of each older one in order to meet that social "need" of midwifery and thus gradually eliminate the unfit midwife.

The selection of a younger woman to train for midwifery should be based on the following criteria: (1) Natural aptitude for midwifery. It is essential that she possess a genuine fondness for her fellow women and sincerely like to give nursing care. (2) An appreciation of cleanliness and its relationship to good health. This appreciation should be demonstrated in the cleanliness of herself, her children, and her home. (3) A physically strong and healthy individual. This should be confirmed by a complete physical examination, including a Wassermann test and vaginal smear. (4) Education at least through the eighth grade. It is assumed that a person who has satisfied this minimum educational requirement can read and write, and that she will understand selected literature pertaining to general health as well as to maternity and infancy.

If the young woman selected possesses the foregoing qualities, she can be taught, in addition to bedside care and simple nursing procedures, the following basic knowledge: (1) Scientific facts regarding the growth of the infant in the uterus. This knowledge would explain the purpose and the importance of prenatal care, the physical examination by a physician, diet, elimination, rest, exercise, proper clothing, and the preparation of supplies for both mother and infant.

(2) Prenatal care, including the recognition of danger signals requiring the services of a physician. (3) Technique of sterilization of supplies and the procedure for a surgically clean delivery. Postnatal care and dressing the cord of the new-born. (4) The recognition of danger signals during labor requiring the immediate services of a physician. (5) Daily new-born and postnatal care until the mother is strong enough to assume the daily care of the infant. (6) The importance of the pelvic examination by a physician at the end of 6 weeks to determine the normal size and position of the uterus, as well as freedom from lacerations.

From the data presented in this paper it is evident that what the midwives said they taught their patients did not agree with what they taught on the observation visits. Apparently much of the knowledge that the group obtained from nearly 12 years of instruction and supervision was not of sufficient importance in their eyes to merit application.

The data furthermore present evidence that cleanliness, not to mention sterilization, was not considered of importance. Postnatal and new-born care were practically nonexistent, although the infant received somewhat better care than the mother.

The interviews of 50 mothers after midwife care had terminated revealed that little postnatal and new-born care had been given. Vaginal examinations are still in vogue, and there was little evidence of the practice of cleanliness.

Since it is impossible to select and train qualified persons for the practice of midwifery in a short period of time, the present instruction and supervision of those already practicing must meanwhile continue. For the future instruction and supervision of the present group of practicing midwives the following is suggested:

1. A record for each midwife should be kept by either the State or county workers. It should include the results of the various contacts made with the midwife either in the midwife classes or in her home. In particular, the subjects and their mode of presentation, together with the midwife's response, should be recorded. Such a record should determine the kind of future instruction and supervision. After a reasonable length of time has lapsed and the midwife has shown no progress, her license should be revoked on recommendation of the county health officer to the State registrar.

2. With regard to group instruction, it would be necessary that the group, because of its educational level, be small in number, say, five or six. This size would insure almost individual instruction and would certainly allow for individual participation. Equipment for demonstrations must be simple and practical, such as is found in the homes that are served by the midwives. It cannot be hoped to teach bacteriology, but it was observed that the home demonstration agents

have been successful in teaching the principles of sterilization in connection with canning. Could not this knowledge be related to the cleanliness that is of such importance in delivery, postpartum, and new-born care? The group should be impressed with the importance of care during the lying-in period; and should any midwife be unable to make daily visits because, for example, she lives too far away from her patient, she must not accept the case. Charts showing the anatomy of the pregnant woman might be used for instruction purposes.

3 In connection with individual instruction, it might be of value to make a simple questionnaire having for its object the determination of the knowledge of the principles of midwifery actually possessed by each midwife The answers would determine the course of instruction to be followed Furthermore, it would be desirable to make demonstrations of adequate prenatal and postnatal visits, followed by return visits with the midwife for the purpose of observing her progress.

4. In teaching and supervising this group of midwives, their low educational level must be borne in mind constantly; all material should be presented concretely in order that they may learn not only by hearing but also by seeing, touching, and doing. The same material should be presented time and time again until the knowledge of it is as much a part of them as the putting of one foot before the other in walking down the country road

ACKNOWLEDGMENT

Acknowledgment is gratefully made of courtesies and of assistance extended by the Virginia State Department of Health, the Brunswick-Greensville Bicounty Health Department, local physicians, and the public health nurses.

A STATISTICAL STUDY OF THE FERGUSON FORM BOARD TEST

By M. J. Pescor, *Assistant Surgeon* (R), *United States Public Health Service, United States Northeastern Penitentiary, Lewisburg, Pa.*

This survey was undertaken principally to determine correlations between the Ferguson Form Board Test, the Stanford Revision of the Binet-Simon Intelligence Test and the New Stanford Achievement Test. A descriptive account of the first may be found in Ferguson's original article (*1*), Bronner et al. (*2*), or in Public Health Bulletin No. 206 (*3*); a description of the second, in Terman's text (*4*); and of the third, in a manual of instructions issued by the copyright owners of the test (*5*).

The Ferguson and Stanford-Binet data were obtained from the files of the United States Northeastern Penitentiary Hospital, and the

Stanford Achievement data were furnished through the courtesy of R. A. McGee, Director of Education at the Northeastern Penitentiary. The 1,000 inmates selected for this study were chosen from the 1,787 individuals admitted to the institution from February 12, 1932, to May 22, 1934. The rejected group included 371 inmates who were received by transfer from other institutions, and had been given the Army Alpha or some test other than the Stanford-Binet and Ferguson tests, 154 individuals who were transferred to some other institution, together with all their records, and 262 subjects who were unable to take the Stanford-Binet Test either because of language difficulty or illiteracy.

The selected individuals were drawn almost entirely from the northeastern section of the United States, including all of New England, New York, New Jersey, Delaware, Maryland, Pennsylvania, and parts of Ohio and West Virginia. They range in ages from 17 to 66 years, with an average age of 33.29 years. Nordics comprise 49.4 percent of the group, Latins 19.7 percent, Semitics 15.2 percent, Negroes 9.3 percent, Slavs 5.2 percent, and the remaining 1.2 percent consists of miscellaneous races, such as Indians, Chinese, and Filipinos. More than half of the group (59.8 percent) attended grade school only, 31.1 percent attended high school, and 9.1 percent gave a history of attending college. Unskilled laborers constitute 38.4 percent of the group, skilled 27 percent, and clerical or professional 34.6 percent. About 38 percent were convicted of passing counterfeit money, 16 percent were sentenced for violation of postal laws (chiefly using the mails to defraud), about 12 percent for violation of the narcotic law, and the remaining 34 percent for sundry offenses, including violation of the Interstate Commerce Act, Prohibition law, Internal Revenue Act, and other Federal laws. Those convicted for the first time form 62.5 percent of the group, and recidivists account for 37.5 percent.

Before proceeding with the main discussion, a word of explanation is necessary concerning the two methods of scoring the Ferguson Test, both of which were employed in this investigation. In the original Ferguson method, each board is scored alike on a simple 5,4,3,2,1 ratio, based on the time required to complete each board. Thus the maximum score on each board is 5, and the maximum total score 30. In the Shimberg modification, scoring is weighted for each board and the total raw scores are converted to corresponding mental ages.

As a matter of expediency, a minor addition was made to the tentative norms of Shimberg, as presented by Bronner et al. (*2*). These norms do not extend beyond the age of 16, which corresponds to a raw score of 54, nor below the mental age of 9, which corresponds to a raw score of 12. A perfect score is 60. For each additional year between the ages of 9 and 16 there is a uniform increment of 6 in the raw score. From 54 to 60 there is also an increment of 6. Therefore, for the purpose of correlation, it seems justifiable to consider a score

of 60 as corresponding to a mental age of 17. Accordingly, this change was adopted as a part of our routine scoring procedure. Changes were also made at the lower end of the scale by assuming a mental age of 6 as corresponding to a raw score of zero, a mental age of 7 years 6 months to a raw score of 3, and a mental age of 8 years to a raw score of 6. These are arbitrary figures, not based on actual experimental data At any rate, there were so few scores

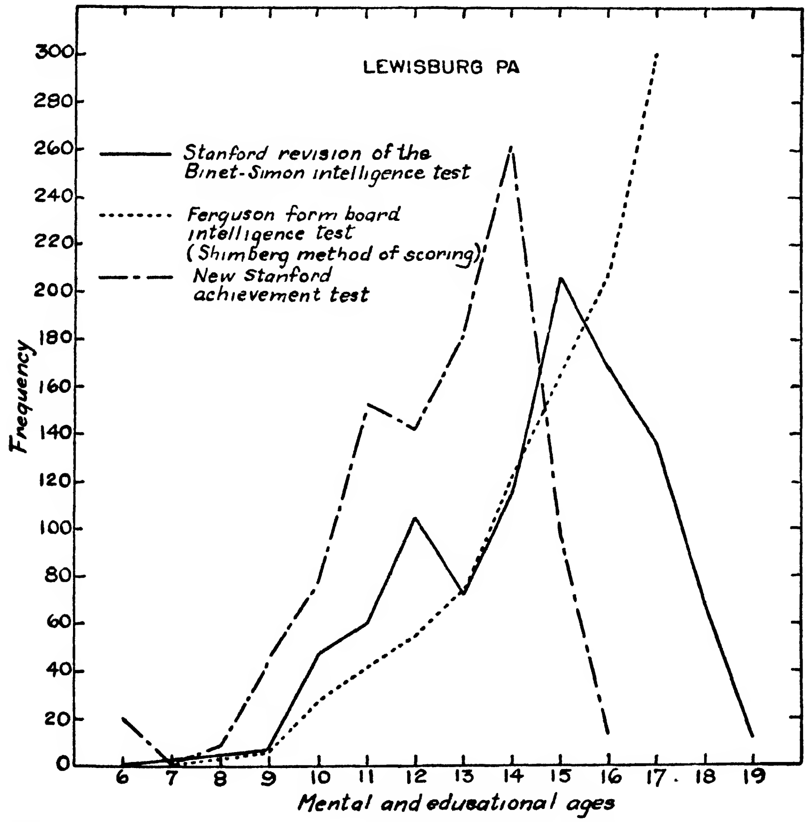

FIGURE 1 Distribution of mental and educational ages of 1,000 inmates of the U S Northeastern Penitentiary, Lewisburg, Pa

below the mental age of 9 that they can have very little effect on the validity of the results.

The Stanford Achievement norms may be expressed either in terms of educational grade status or educational age. Thus an educational grade status of 4.1 indicates the equivalent of 1 month of a fourth grade education. The corresponding educational age of 9 years 11 months indicates the average age of pupils who attend such a grade.

Distribution curves were first plotted for all three tests. Figure 1 presents the comparative distribution of the following: (1) Mental

ages obtained by the use of the Stanford-Binet Test; (2) mental ages obtained by the use of the Ferguson Test, employing the Shimberg method of scoring; (3) educational ages determined by the use of the Stanford Achievement Test. Figure 2 presents the distribution of raw scores in the Ferguson Test, based on the original method of scoring.

It is quite obvious that, of the two methods of scoring the Ferguson Test, the original shows a much better type of distribution at the

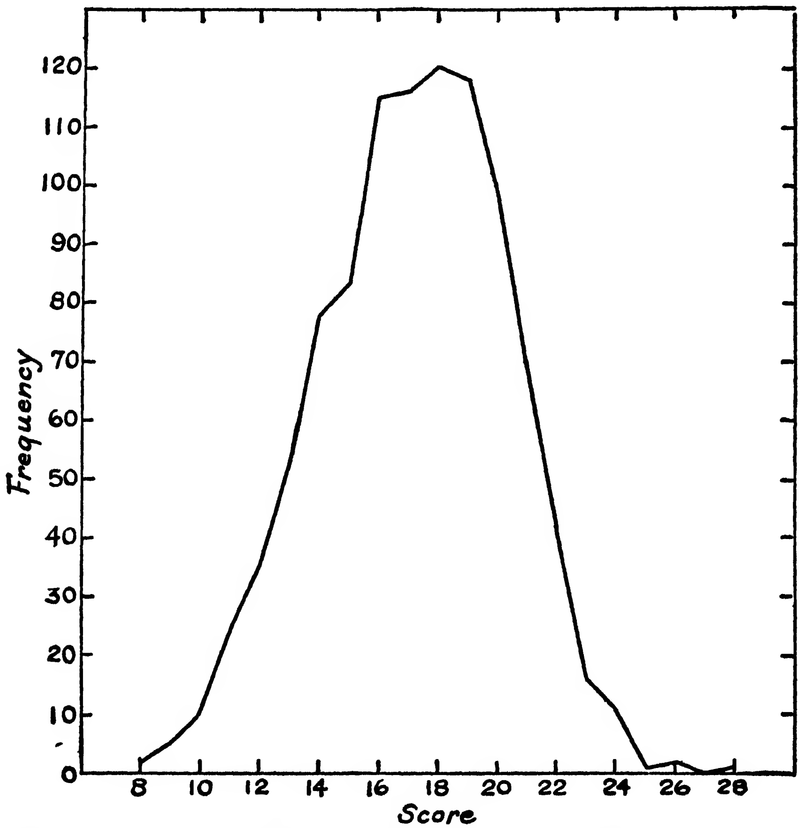

FIGURE 2.—Distribution of scores made by 1,000 inmates of the U. S. Northeastern Penitentiary on the Ferguson Form Board Test, using Ferguson's original method of scoring.

upper mental age levels than the Shimberg modification. Too many individuals make a perfect score on the latter, and no individual makes a perfect score on the former, the highest being 28—two short of perfection. The Stanford, Binet and Stanford Achievement curves, on the other hand, resemble each other quite closely, except that the peak of the former is at the 15-year age level and of the latter at the 14-year age level.

Coefficients of correlation between the three tests were next determined for the group as a whole. Correlations were also calculated for two subgroups of 500 each, based on the distribution of Stanford-Binet mental ages, the first consisting of those individuals below the median mental age, and the second above the median mental age. The results are presented in table 1.

TABLE 1.—*Coefficients of correlation, together with probable errors, between the Stanford-Binet, Ferguson, and Stanford Achievement Tests*

Tests correlated	Correlations		
	Group I [1]	Group II [2]	Total [3]
Stanford-Binet *v.* Ferguson:			
A. Shimberg scoring	0.22±.04	0.05±.04	0.30±.03
B. Ferguson scoring	.18±.04	.10±.04	.29±.03
Stanford Achievement *v.* Ferguson:			
A. Shimberg scoring	.18±.04	.11±.04	.28±.03
B. Ferguson scoring	.21±.04	.12±.04	.29±.03
Stanford-Binet *v.* Stanford Achievement	.58±.03	.41±.04	.73±.02

[1] Group I represents 500 individuals whose mental ages are below the median mental age of 15, as determined on the basis of the Stanford-Binet Test.
[2] Group II represents 500 individuals whose mental ages are above the median mental age of 15, as determined on the basis of the Stanford-Binet Test.
[3] Total represents 1,000 cases; i. e., groups I and II combined.

On the assumption that a nonlinear relationship existed between the Stanford-Binet and the Ferguson Tests, a test for linearity was applied according to the Pearson method as outlined by Chaddock.[1] The correlation ratios were found to be .35 and .36, with standard errors of .003 and .004, respectively. The observable difference between the correlation coefficient of .30 and the correlation ratios is, therefore, .05 and .06. Since three times the standard error is less than the observable difference in both instances, it indicates that there is a slight nonlinear relationship between the Ferguson and Stanford-Binet Tests, but not sufficient to disprove the findings by the product deviation method of computing correlations.

The most striking observation is the relatively high correlation existing between the Stanford-Binet and the Stanford Achievement Tests. This means that either education has a decided influence on the Stanford-Binet, or else individuals who have a high intelligence rating according to the latter test are more likely to continue with their formal education, and hence make a better showing on the Stanford Achievement Test. Probably both factors are responsible.

[1] "The product-deviation method (*r*) of measuring the degree of association between two variables is based upon the hypothesis that a straight line fits most closely the means of the columns and the rows in a correlation table, and therefore describes the association in the best possible manner. But sometimes the means conform more closely to some other form of curve * * *. When the line of the means is nonlinear, the degree of association may be high and yet *r* will not reveal it * * *. A low value for *r* does not prove that the degree of association is really small or that the two variables are correlated." (*6*)

This relationship is more marked in the group who have a mental age below 15 years, which may indicate that education influences an individual's score on the Stanford-Binet up to a certain point and then gradually loses its effect. On the other hand, the correlations between the Ferguson and Stanford Achievement Tests are low. Although educational attainment has slightly more influence on the group with lower mental ages than the one with the higher, it would appear from the results that the Ferguson Test measures native intelligence more accurately than does the Stanford-Binet.

There may be some criticism for using the Stanford Achievement Test as the criterion for establishing the relationship between education and intelligence, on the grounds that it may measure intelligence rather than educational attainment. However, the choice was made for two definite reasons. In the first place, unconfirmed statements by inmates regarding their educational careers are not reliable. For example, one individual claimed to be a college graduate, but on the Achievement Test he obtained an educational grade status of 3.3. His mental age was found to be 10 years 8 months on the Stanford-Binet, and 11 years 5 months on the Ferguson. Second, formal education does not take into account what the individual learns after he leaves school. For example, a man may have attended school only as far as the fourth grade but by diligent self-application he may acquire the equivalent of a high-school education. As a matter of fact, despite these objections, the coefficient of correlation between the Stanford Achievement Test and actual professed education was found to be fairly high, $.60 \pm .02$.

The Stanford-Binet and Ferguson Tests were subjected to further study by subdividing the original group according to education, recidivism, occupation, race, and age, average mental ages being determined for each subgroup, as well as correlations between the Stanford-Binet and Ferguson Tests. Although the averages for the latter test were computed on the basis of both methods of scoring, the results were so nearly alike that for the sake of brevity only the averages obtained by the Shimberg scoring are shown in figure 3.

The comparative averages in figure 3 indicate that education has a decided influence on the Stanford-Binet, as indicated by the steep rise in average mental age with higher education. The Ferguson Test shows a slower rise, reaching its peak in the high-school group, and showing a slight drop in the average mental age for the college group. Recidivists tend to have a lower average mental age in both tests, with the Ferguson showing a progressive decline as the number of convictions increases. Clerical workers have the highest average mental age on the Stanford-Binet, skilled workers on the Ferguson, and the unskilled lowest in both. Negroes score lowest on both tests,

a finding which coincides with that of numerous investigators Semitics score the highest on the Stanford-Binet which is also a common finding. Nordics score the highest on the Ferguson The youngest age group, 17–24, has the lowest average mental age on the Stanford-

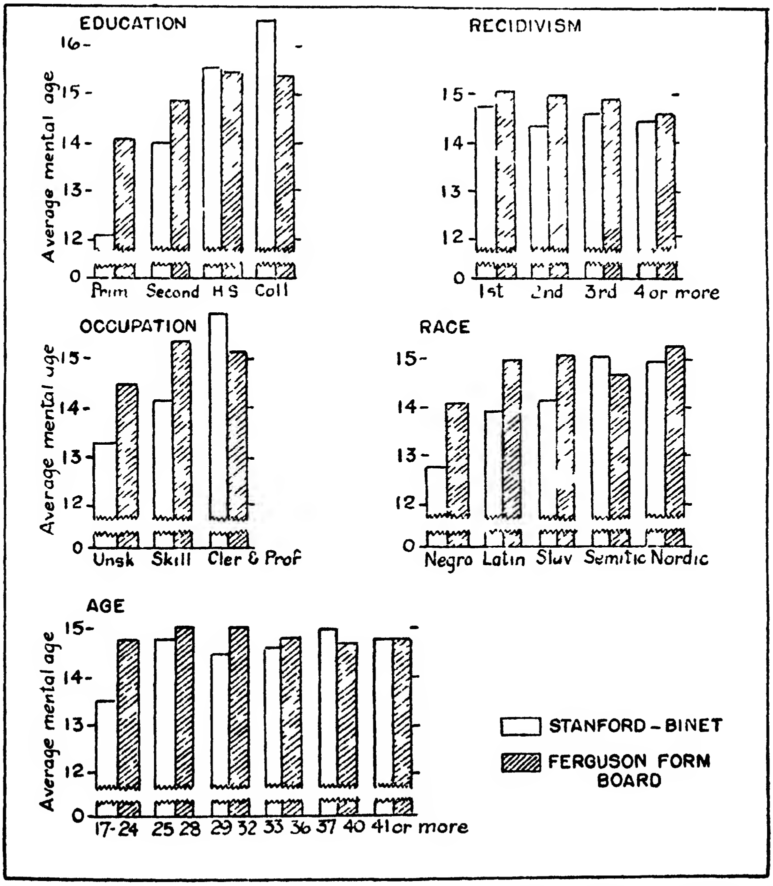

FIGURE 3 Distribution of average mental ages according to education, recidivism, occupation, race, and age

Binet, and the 37–40 age group has the lowest on the Ferguson. The 37–40 age group has the highest average mental age on the Stanford-Binet; the 25–28 and 29–32 age groups have the highest on the Ferguson. The latter test shows a more constant average mental age level than does the Stanford-Binet for all age groups.

TABLE 2.—*Correlations, together with probable errors, between the Stanford-Binet and Ferguson Tests, subdivided into groups according to education, recidivism, occupation, race, and age*

Classification	Number of cases	Correlations	Classification	Number of cases	Correlations
I. Education:			IV. Race:		
a. Primary	90	−0.03±.10	a. Negro	93	0.41±.09
b. Secondary	508	.27±.04	b. Latin	197	.19±.07
c. High School	311	.25±.05	c. Slav	52	.28±.13
d. College	91	.01±.10	d. Semitic	152	.22±.08
II. Recidivism:			e. Nordic	494	.29±.04
a. 1st Conviction	625	.41±.03	f. Others (Chinese, Indians, etc.)	12	(1)
b. 2nd Conviction	232	.28±.06	V. Age:		
c. 3rd Conviction	91	.33±.09	a. 17–24 years	151	.44±.07
d. 4 or more Convictions	52	−.04±.14	b. 25–28 years	186	.36±.06
III. Occupation:			c. 29–32 years	185	.11±.06
a. Unskilled	384	.40±.04	d. 33–36 years	157	.20±.07
b. Skilled	270	.29±.05	e. 37–40 years	125	.25±.08
c. Clerical and professional	346	.15±.05	f. 41 years and over	196	.49±.05

[1] Too few cases.

Coefficients of correlation as shown in table 2 are relatively high for first offenders, the unskilled group, Negroes, and for the age groups 17–24, 25–28, and 41 and over. Why first offenders should show a high correlation is not understood, unless it is because they have a preponderance of individuals falling into the age groups mentioned above which also show higher correlations.

CONCLUSIONS

1. The Shimberg method of scoring the Ferguson Form Board Test does not discriminate sufficiently at the upper mental age levels, and hence does not give a satisfactory distribution curve.

2. At the upper mental age levels the original Ferguson method of scoring is preferable, because it gives a more normal distribution curve.

3. The coefficients of correlation between the Stanford-Binet Test and the Ferguson Test were found to be .30 when the latter was scored by the Shimberg method, and .29 when the latter was scored by the original method.

4. The coefficients of correlation between the Stanford Achievement Test and the Ferguson Test were found to be .28 when the latter was scored by the Shimberg method, and .29 when the latter was scored by the original method.

5. The coefficient of correlation between the Stanford-Binet and Stanford Achievement Tests was found to be .73.

6. Educational achievement apparently influences the Stanford-Binet Test to a greater extent than it does the Ferguson Test.

7. The coefficient of correlation between the Stanford Achievement Test and actual professed education is .60.

8. The average Stanford-Binet mental age is highest for individuals with a college education, clerical and professional workers, Semitics, first offenders, and those individuals falling into the age group 37–40. It is lowest for individuals with a primary grade education,

unskilled laborers, Negroes, second offenders, and individuals falling into the age group 17–24.

9. The average Ferguson mental age is highest for individuals with a high school education, skilled workers, Nordics, first offenders, and individuals in the 25–28 and 29–32 age groups. It is lowest for individuals with a primary grade education, unskilled laborers, Negroes, fourth offenders, and those in the age group 37–40.

10. Coefficients of correlation between the Ferguson and Stanford-Binet Tests are relatively high for first offenders, unskilled workers, Negroes, and those individuals in the age groups 17–24, 25–28, and 41 or over.

ACKNOWLEDGMENTS

Appreciation is expressed to Asst. Surg. Gen. Walter L. Treadway, without whose cooperation this study would not have been possible, to Senior Surg. J. G. Wilson for his untiring interest, and to Asst. Psychologist Barkev S. Sanders for his valuable aid. I am especially indebted to Surg. J. D. Reichard and Senior Statistician Rollo H. Britten for their many helpful suggestions.

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DEATHS DURING WEEK ENDED DEC. 7, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Dec. 7, 1935	Corresponding week, 1934
Data from 86 large cities of the United States:		
Total deaths	8,738	8,383
Deaths per 1,000 population, annual basis	12.2	11.7
Deaths under 1 year of age	525	591
Deaths under 1 year of age per 1,000 estimated live births	48	55
Deaths per 1,000 population, annual basis, first 49 weeks of year	11.3	11.3
Data from industrial insurance companies:		
Policies in force	67,820,109	67,105,185
Number of death claims	12,549	12,331
Death claims per 1,000 policies in force, annual rate	9.6	9.6
Death claims per 1,000 policies, first 49 weeks of year, annual rate	9.5	9.8

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Dec. 14, 1935, and Dec. 15, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 14, 1935, and Dec. 15, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 14, 1935	Week ended Dec 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934
New England States:								
Maine	2	2	2	1	179	48	1	1
New Hampshire	1				1	7	0	0
Vermont	1	6			118	7	0	0
Massachusetts	15	21			125	195	2	3
Rhode Island	1	5			79	3	0	1
Connecticut	5	1	5	6	134	314	0	1
Middle Atlantic States:								
New York	54	37	[1] 19	[1] 61	662	787	5	3
New Jersey	24	32	13	64	21	54	1	0
Pennsylvania	46	75			198	989	5	2
East North Central States:								
Ohio	67	97	78	60	129	271	5	1
Indiana	43	31	35	46	12	232	4	0
Illinois	76	48	35	21	29	778	10	1
Michigan	20	16	5	19	42	191	3	0
Wisconsin	2	4	79	15	68	353	1	1
West North Central States:								
Minnesota	5	31			47	812	0	2
Iowa	18	15	1	31	12	784	2	0
Missouri	51	62	95	78	5	120	4	0
North Dakota	5	11	10	11	2	124	0	0
South Dakota	4				5	38	0	1
Nebraska	9	9			17	42	2	1
Kansas	24	8			6	207	2	1
South Atlantic States:								
Delaware		2			50	1	0	0
Maryland [2]	15	19	9	12	43	81	4	0
District of Columbia	33	9		1	3	5	3	0
Virginia	44	52			15	165	2	4
West Virginia	37	47	52	94	13	236	2	2
North Carolina [3]	51	53	9	22	15	505	0	4
South Carolina [3]	9	5	235	419	6	4	2	0
Georgia [3]	20	13	113				0	2
Florida [3]	9	15	4			8	0	1

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 14, 1935, and Dec. 15, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934
East South Central States:								
Kentucky	36	36	24	38	14	152	3	2
Tennessee	31	30	72	59	1	76	3	0
Alabama [3]	26	20	88	56	10	44	3	2
Mississippi [2]	13	15					1	0
West South Central States:								
Arkansas	6	15	43	44	3	10	5	0
Louisiana [3]	19	30	25	14	13	19	2	0
Oklahoma [4]	27	10	48	98	3	1	35	0
Texas [3]	111	88	202	288	16	19	11	1
Mountain States:								
Montana	1	8	17	14	15	81	0	1
Idaho			2		23	5	0	0
Wyoming		1			4	15	0	0
Colorado	8	7			11	287	1	2
New Mexico	6			2	3	49	0	0
Arizona	3	2	56	18	3	5	0	0
Utah [2]		1		2	4	12	1	0
Pacific States:								
Washington		3	3		259	37	1	1
Oregon			17	36	408	27	2	0
California	43	63	29	41	253	171	7	2
Total	1,021	1,055	1,425	1,671	3,079	8,371	135	43
First 50 weeks of year	36,393	38,757	115,554	611,177	716,637	713,044	5,378	2,186

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934
New England States:								
Maine	3	2	29	35	0	0	0	3
New Hampshire	0	0	16	8	0	0	1	0
Vermont	0	0	16	27	0	0	1	1
Massachusetts	6	0	217	170	0	0	3	2
Rhode Island	0	0	22	13	0	0	0	0
Connecticut	1	0	59	39	0	0	2	1
Middle Atlantic States:								
New York	8	1	623	429	1	0	19	16
New Jersey	3	0	163	129	0	0	2	5
Pennsylvania	4	2	555	542	0	0	27	20
East North Central States:								
Ohio	1	4	485	549	1	5	4	19
Indiana	1	6	190	203	1	3	7	4
Illinois	4	0	622	558	8	3	6	16
Michigan	6	1	320	283	0	0	10	7
Wisconsin	1	2	424	487	4	17	0	2
West North Central States:								
Minnesota	0	0	376	137	1	6	1	0
Iowa	1	1	180	60	1	1	1	3
Missouri	1	0	140	84	0	2	1	9
North Dakota	0	0	62	59	4	0	0	1
South Dakota	0	0	66	19	15	6	2	1
Nebraska	0	0	256	29	45	20	0	1
Kansas	0	1	186	77	2	2	5	2
South Atlantic States:								
Delaware	0	0	11	20	0	0	1	0
Maryland [3]	0	1	76	117	0	0	7	6
District of Columbia	0	0	19	17	0	0	6	0
Virginia	0	0	75	119	0	14	5	12
West Virginia	0	1	74	153	1	0	5	21
North Carolina [3]	4	0	68	84	0	0	6	4
South Carolina [3]	1	0	3	3	0	0	1	1
Georgia [3]	0	0	33		0	0	9	11
Florida [3]	0	0	11	4	0	0	4	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 14, 1935, and Dec. 15, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934	Week ended Dec. 14, 1935	Week ended Dec. 15, 1934
East South Central States:								
Kentucky	2	0	71	66	0	0	19	11
Tennessee	1	1	72	61	1	1	6	12
Alabama [3]	0	0	14	22	0	1	2	15
Mississippi [2]	0	1	17	24	0	1	7	2
West South Central States:								
Arkansas	0	0	12	19	0	9	5	13
Louisiana [3]	0	0	23	21	1	0	13	8
Oklahoma [4]	0	0	25	27	1	1	9	15
Texas [3]	0	0	134	78	0	1	14	42
Mountain States:								
Montana	0	3	143	37	22	1	0	2
Idaho	0	0	60	2	1	0	0	6
Wyoming	0	0	98	18	2	1	0	0
Colorado	1	0	94	245	0	1	1	1
New Mexico	1	0	28	20	1	0	5	10
Arizona	1	0	25	10	0	0	0	6
Utah [2]	0	0	108	37	0	1	0	1
Pacific States:								
Washington	3	8	69	44	23	52	1	2
Oregon	5	1	59	82	1	0	3	2
California	7	14	337	260	3	16	16	5
Total	66	50	6,766	5,527	140	165	237	323
First 50 weeks of year	10,641	7,197	240,108	204,501	7,134	4,907	17,201	20,609

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Typhus fever, week ended Dec. 14, 1935, 23 cases, as follows: North Carolina, 1; South Carolina, 1; Georgia, 9; Florida, 2; Alabama, 3; Louisiana, 1; Texas, 6.
[4] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October 1935										
Wisconsin	6	23	166		228		5	1,406	40	20
November 1935										
Georgia	11	206	70	284	5	22	3	160		32
Iowa	7	88	12	1	23		6	418		43
Maine	2	4	17		507		13	105		9
Massachusetts	5	36		3	303		58	756		7
Michigan	12	104	6	9	95		26	802		20
New Jersey	5	81	36	1	69		28	368		20
Wyoming	3	8			32		0	257		

October 1935

	Cases
Wisconsin:	
Chicken pox	1,917
Dysentery (amoebic)	1
Epidemic encephalitis	2
German measles	82
Mumps	1,805
Septic sore throat	10
Tularaemia	1
Undulant fever	10
Whooping cough	878
Anthrax:	
Massachusetts	1

November 1935

	Cases
Chicken pox:	
Georgia	33
Iowa	354
Maine	385
Massachusetts	861
Michigan	1,974
New Jersey	1,030
Wyoming	91
Conjunctivitis, infectious:	
Georgia	1
Dengue:	
Georgia	2

November 1935

	Cases
Dysentery:	
Georgia (amoebic)	17
Georgia (bacillary)	4
Massachusetts (amoebic)	1
Massachusetts (bacillary)	1
Michigan (amoebic)	2
Michigan (bacillary)	2

November 1935	Cases
Epidemic encephalitis:	
Massachusetts	1
Michigan	2
New Jersey	4
German measles:	
Iowa	1
Maine	56
Massachusetts	94
Michigan	23
New Jersey	33
Hookworm disease:	
Georgia	549
Lead poisoning:	
Maine	1
Massachusetts	2
Michigan	1
Mumps:	
Georgia	24
Iowa	443
Maine	478
Massachusetts	674
Michigan	205
New Jersey	432
Wyoming	84
Ophthalmia neonatorum:	
Massachusetts	68
New Jersey	2

November 1935	Cases
Paratyphoid fever:	
Georgia	1
Massachusetts	2
New Jersey	1
Rabies in animals:	
Massachusetts	19
Michigan	1
New Jersey	19
Rabies in man:	
Georgia	1
Screw worm infection:	
Georgia	2
Septic sore throat:	
Georgia	28
Iowa	3
Maine	3
Massachusetts	9
Michigan	60
Wyoming	7
Tetanus:	
Massachusetts	2
Michigan	1
Trachoma:	
Georgia	1
Massachusetts	2
New Jersey	2

November 1935	Cases
Trichinosis:	
Maine	6
Massachusetts	3
New Jersey	3
Tularaemia:	
Georgia	1
Iowa	1
Michigan	1
Typhus fever: [1]	
Georgia	50
Undulant fever:	
Georgia	2
Iowa	4
Maine	1
Massachusetts	2
Michigan	8
New Jersey	4
Vincent's infectino:	
Maine	8
Michigan	14
Whooping cough:	
Georgia	29
Maine	145
Massachusetts	274
Michigan	1,382
New Jersey	658
Wyoming	35

[1] The report of 1 case of typhus fever in Nevada in October, Public Health Reports Dec. 13, 1935, p. 1771, is incorrect, no case of the disease having occurred.

EPIDEMIC MENINGITIS IN KIOWA COUNTY, OKLA.

For the week ended December 14, 1935, the Commissioner of Health of Oklahoma reported 35 cases of epidemic meningitis in the State of Oklahoma, 27 of which were in Kiowa County.

CASES OF VENEREAL DISEASES REPORTED FOR OCTOBER 1935

These reports are published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State and city health officers. They are preliminary and are therefore subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

Reports from States

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama	584	2.15	98	0.36
Arizona	31	.68	77	1.68
Arkansas	209	1.11	150	.80
California	1,597	2.59	1,639	2.66
Colorado [1]				
Connecticut	230	1.39	183	1.11
Delaware	166	6.86	45	1.86
District of Columbia	173	3.48	177	3.56
Florida	288	1.83	136	.86
Georgia	1,159	3.98	645	2.22
Idaho	0		0	
Illinois	1,380	1.75	1,255	1.59
Indiana	141	.43	158	.48
Iowa [2]	102	.41	180	.72
Kansas	86	.45	56	.29
Kentucky	236	1.08	283	1.07
Louisiana	152	.70	132	.61
Maine	49	.61	40	.50
Maryland	870	5.21	289	1.73
Massachusetts	511	1.18	595	1.37
Michigan	455	.89	489	.96
Minnesota	353	1.36	381	1.46
Mississippi	1,211	5.89	1,954	9.50
Missouri	2,134	5.80	1,084	2.95
Montana [2]	56	1.04	51	.95
Nebraska	49	.35	79	.57
Nevada [1]				
New Hampshire	18	.38	20	.43
New Jersey	541	1.28	340	.80
New Mexico [2]	93	2.13	125	2.86

See footnotes at end of table.

Reports from States—Continued

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
New York [2]	5,499	4.21	1,243	.95
North Carolina	1,126	3.41	381	1.15
North Dakota	38	.55	87	1.26
Ohio [2]	504	.74	212	.31
Oklahoma [2]	143	.58	139	.56
Oregon	70	.71	210	2.12
Pennsylvania	330	.34	244	.25
Rhode Island	107	1.52	68	.96
South Carolina [2]	246	1.41	367	2.10
South Dakota	5	.07	55	.78
Tennessee	1,130	4.22	473	1.77
Texas	268	.44	69	.11
Utah [1]				
Vermont	22	.61	33	.91
Virginia	422	1.73	273	1.12
Washington	131	.81	160	1.00
West Virginia	291	1.63	157	.88
Wisconsin [3]	44	.15	161	.54
Wyoming [1]				
Total	23,300	1.87	14,993	1.20

Reports from cities of 200,000 population or over

Akron, Ohio	22	0.81	13	0.48
Atlanta, Ga	252	8.78	194	6.75
Baltimore, Md	504	6.11	196	2.33
Birmingham, Ala	125	4.43	61	2.13
Boston, Mass	205	2.59	210	2.63
Buffalo, N. Y	190	3.21	82	1.39
Chicago, Ill	747	2.09	793	2.22
Cincinnati, Ohio	68	1.46	43	.92
Cleveland, Ohio	191	2.05	124	1.33
Columbus, Ohio	37	1.21	4	.13
Dallas, Tex	93	3.21	24	.83
Dayton, Ohio	11	.53	0	
Denver, Colo	100	3.37	104	3.51
Detroit, Mich	234	1.35	326	1.83
Houston, Tex [4]	183	5.46	47	1.40
Indianapolis, Ind	57	1.51	46	1.22
Jersey City, N. J [5]				
Kansas City, Mo	43	1.02	18	.43
Los Angeles, Calif	399	2.79	358	2.50
Louisville, Ky	192	5.93	138	4.26
Memphis, Tenn	223	8.35	77	2.88
Milwaukee, Wis	6	.10	21	.34
Minneapolis, Minn	103	2.12	155	3.19
Newark, N. J	151	3.26	86	1.86
New Orleans, La [1]				
New York, N. Y	4,600	6.30	1,002	1.37
Oakland, Calif	23	.76	34	1.12
Omaha, Nebr	19	.86	14	.64
Philadelphia, Pa	306	1.54	161	.81
Pittsburgh, Pa	28	.41	70	1.02
Portland, Oreg	37	1.18	139	4.43
Providence, R. I	65	2.51	30	1.16
Rochester, N. Y	57	1.69	84	2.49
St. Louis, Mo	655	7.84	497	5.95
St. Paul, Minn	48	1.70	42	1.49
San Antonio, Tex [1]				
San Francisco, Calif	146	2.18	145	2.16
Seattle, Wash	84	2.21	100	2.63
Syracuse, N. Y. [6]	24	1.10	36	1.65
Toledo, Ohio	47	1.54	25	.82
Washington, D. C. [7]	173	3.48	177	3.56

[1] Not reporting.
[2] Incomplete.
[3] Only cases of syphilis in the infectious stage are reported.
[4] Data for Jefferson Davis and Herman hospitals; physicians of Houston are not compelled to report venereal diseases
[5] No report for current month.
[6] Reported by dispensary and clinics.
[7] Reported by Social Hygiene Clinic.

WEEKLY REPORTS FROM CITIES

City reports for week ended Dec. 7, 1935

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	0	1	3	0	0	3	19	25
New Hampshire:											
Concord	0	------	0	0	0	1	0	1	0	0	11
Manchester	0	------	0	0	3	6	0	0	0	0	26
Nashua	0	------	------	0	------	0	0	------	0	0	------
Vermont:											
Barre	0	------	0	0	0	0	0	0	0	0	4
Burlington	1	------	0	0	0	0	0	0	0	0	13
Rutland	0	------	0	0	0	3	0	0	0	0	6
Massachusetts:											
Boston	2	------	3	31	18	42	0	7	1	7	220
Fall River	0	------	0	0	1	3	0	0	0	0	24
Springfield	0	------	0	0	5	2	0	0	0	11	21
Worcester	0	------	0	0	2	29	0	1	0	4	36
Rhode Island:											
Pawtucket	0	------	0	0	0	1	0	0	0	0	15
Providence	0	------	0	0	2	11	0	1	0	14	59
Connecticut:											
Bridgeport	1	3	2	1	2	1	0	2	0	2	31
Hartford	0	0	0	0	3	4	0	1	1	8	48
New Haven	0	------	0	0	3	1	0	0	0	14	30
New York:											
Buffalo	0	------	1	25	18	49	0	5	0	6	148
New York	45	13	6	103	111	140	0	73	5	140	1,470
Rochester	1	------	0	3	4	2	0	0	0	4	71
Syracuse	0	------	0	0	3	3	0	1	0	10	45
New Jersey:											
Camden	1	------	0	0	0	7	0	0	1	1	21
Newark	0	8	0	1	8	25	0	4	0	37	87
Trenton	0	------	0	0	8	2	0	3	1	1	42
Pennsylvania:											
Philadelphia	5	4	3	67	39	81	0	24	6	114	556
Pittsburgh	3	3	0	11	26	46	0	4	0	17	187
Reading	0	------	0	2	0	0	0	3	0	0	20
Scranton	1	------	0	1	------	8	0	------	0	0	------
Ohio:											
Cincinnati	8	------	2	0	8	17	0	7	0	2	160
Cleveland	3	23	0	2	21	21	0	11	1	46	190
Columbus	3	2	2	1	11	20	0	2	1	1	103
Toledo	0	2	2	23	7	11	0	2	0	10	81
Indiana:											
Anderson	1	------	0	0	2	1	0	0	0	1	7
Fort Wayne	0	------	0	0	1	8	0	0	0	0	20
Indianapolis	2	------	0	6	16	26	0	6	1	17	115
Muncie	1	------	0	1	3	0	0	1	0	0	12
South Bend	1	------	0	1	3	2	0	0	0	0	15
Terre Haute	0	------	0	0	0	0	0	0	0	0	14
Illinois:											
Alton	8	------	1	0	1	6	0	0	0	0	9
Chicago	12	10	7	13	67	210	0	33	0	121	736
Elgin	1	------	0	0	0	3	0	0	0	2	11
Moline	1	------	0	0	1	1	0	0	0	0	14
Springfield	0	------	0	1	5	10	0	0	0	0	24
Michigan:											
Detroit	14	5	1	7	36	68	0	25	0	185	206
Flint	1	------	0	1	5	30	0	2	1	11	29
Grand Rapids	0	------	0	1	2	12	0	0	0	4	29
Wisconsin:											
Kenosha	0	------	0	0	0	5	0	0	0	4	6
Milwaukee	0	1	1	1	3	48	0	2	0	88	92
Racine	------	------	------	------	------	------	------	------	------	------	------
Superior	0	------	0	0	0	4	0	0	0	0	9
Minnesota:											
Duluth	0	------	0	3	1	1	0	0	0	10	23
Minneapolis	2	------	0	6	7	89	0	0	0	8	85
St. Paul	0	------	0	7	13	36	0	4	0	3	75
Iowa:											
Cedar Rapids	0	------	------	1	------	3	0	------	0	0	------
Davenport	1	------	------	0	------	7	0	------	0	0	------
Des Moines	2	------	------	0	------	11	0	------	3	1	29
Sioux City	1	------	------	1	------	11	0	------	0	0	------
Waterloo	3	------	------	1	------	12	0	------	0	1	------

City reports for week ended Dec. 7, 1935—Continued

State and city	Diphtheria cases	Influenza: Cases	Influenza: Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Missouri:											
Kansas City	4		1	1	13	7	0	3	0	4	89
St. Joseph	6		0	0	0	2	0	0	0	0	11
St. Louis	12		0	1	13	41	0	6	1	3	259
North Dakota:											
Fargo	0		0	0	1	2	1	0	0	0	9
Grand Forks	0			0		1	0		0	1	
Minot	0		0	1	0	2	0	0	0	0	9
South Dakota:											
Aberdeen	0			0		0	0		0	0	
Nebraska:											
Omaha	3		0	1	6	107	14	3	0	1	58
Kansas:											
Lawrence	0		0	0	0	0	0	0	0	0	10
Topeka	0		0	0	2	9	0	0	0	9	10
Wichita	1		0	1	5	11	0	0	0	6	26
Delaware:											
Wilmington	0		0	0	3	1	0	0	0	0	22
Maryland:											
Baltimore	5	5	2	4	25	35	0	15	2	8	245
Cumberland	3		0	0	0	0	0	0	0	0	12
Frederick	1		0	0	1	0	0	0	0	0	4
District of Columbia:											
Washington	33	4	3	3	13	12	0	12	2	3	174
Virginia:											
Lynchburg	2		0	0	1	1	0	0	0	5	14
Norfolk	3		0	0	3	2	0	1	0	8	37
Richmond	3		1	0	0	4	0	3	0	1	52
Roanoke	1		0	0	4	4	0	0	0	1	16
West Virginia:											
Charleston	1		0	0	4	3	0	0	0	0	30
Huntington	1			0		3	0		0	0	
Wheeling	0		0	1	2	1	0	0	0	0	19
North Carolina:											
Gastonia	0		0	0	1	0	0	0	0	0	8
Raleigh	0		0	0	0	0	0	2	0	0	10
Wilmington	0		0	0	1	0	0	0	0	0	6
Winston-Salem	2		0	1	4	0	0	1	0	0	19
South Carolina:											
Charleston	0	7	0	0	3	3	0	1	0	2	21
Columbia											
Florence	0		0	0	1	0	0	0	0	0	4
Greenville	0		0	0	0	0	0	0	0	0	8
Georgia:											
Atlanta	8	22	2	1	13	15	0	3	1	0	100
Brunswick	0		0	0	0	0	0	0	0	0	3
Savannah	0	11	0	0	6	2	0	1	0	4	51
Florida:											
Miami	1		1	0	0	2	0	4	1	0	30
Tampa	0		0	0	2	1	0	2	0	0	31
Kentucky:											
Ashland	2			0		0	0		0	0	
Covington	2		0	0	2	5	0	1	0	0	
Lexington	0		0	0	2	0	0	2	2	0	19
Tennessee:											
Knoxville	7	3	1	0	2	1	0	0	1	0	27
Memphis	3		1	0	15	14	0	7	0	8	101
Nashville	0		2	0	8	3	0	4	0	0	63
Alabama:											
Birmingham	3	12	0	0	5	1	0	3	0	0	64
Mobile	2	2	0	0	4	1	0	1	0	0	25
Montgomery	0			1		1	0		1	0	
Arkansas:											
Fort Smith	0			0		1	0		0	0	
Little Rock	0		1	0	4	3	0	2	0	0	11
Louisiana:											
Lake Charles	2		0	0	1	2	0	0	0	0	10
New Orleans	12	2	2	2	21	6	0	8	1	8	179
Shreveport	3		0	0	6	2	0	4	0	0	41
Oklahoma:											
Oklahoma City	2	14	0	0	3	0	0	2	0	0	40
Texas:											
Dallas	7		0	0	6	7	0	4	0	0	68
Fort Worth	7		0	0	9	6	0	2	0	0	37
Galveston	2		0	0	2	1	0	1	0	0	20
Houston	17		2	1	11	2	0	7	0	0	94
San Antonio	4		9	0	9	1	0	7	0	0	81

City reports for week ended Dec 7, 1935—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Montana											
Billings	0		0	0	0	19	0	0	0	1	4
Great Falls	0		0	0	2	1	0	0	0	2	9
Helena	0		0	0	2	0	0	0	0	0	3
Missoula	0		0	0	3	36	0	0	0	0	8
Idaho											
Boise	0		0	0	3	0	0	0	0	0	9
Colorado											
Colorado Springs	0		0	0	1	6	0	0	0	2	9
Denver	2		0	6	10	14	0	6	0	2	96
Pueblo	0		0	0	1	12	0	0	0	3	6
New Mexico											
Albuquerque	0		0	0	1	7	0	1	0	2	9
Utah											
Salt Lake City	0		0	0	7	41	0	0	0	2	46
Nevada											
Reno											
Washington											
Seattle	0	0	1	3	10	21	0	5	1	2	97
Spokane	0	1	1	21	7	2	3	1	0	1	35
Tacoma	0		0	0	2	2	0	0	0	0	25
Oregon											
Portland	0		1	68	7	19	0	4	0	0	91
Salem	0			0		1	0		0	0	
California											
Los Angeles	19	15	1	25	14	48	0	17	0	14	344
Sacramento	3	1	1	0	3	25	0	1	1	9	35
San Francisco	3	2	2	[illegible]	18	25	0	9	0	20	170

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases
Maine			
Portland	0	0	1
Massachusetts			
Boston	0	0	2
Worcester	0	0	1
Connecticut			
Hartford	0	0	1
New York			
New York	7	3	2
Pennsylvania			
Philadelphia	4	2	2
Ohio			
Cincinnati	1	0	0
Toledo	2	0	0
Indiana			
Indianapolis	0	0	1
South Bend	1	0	0
Illinois			
Alton	0	1	0
Chicago	3	3	0
Moline	1	0	0
Springfield	1	0	0
Michigan			
Detroit	2	0	0
Wisconsin			
Kenosha	0	0	1
Superior	1	0	0
Minnesota			
Minneapolis	1	0	0
Iowa			
Sioux City	1	0	0

State and city	Meningococcus meningitis Cases	Meningococcus meningitis Deaths	Poliomyelitis cases
Missouri			
Kansas City	0	1	0
St Joseph	1	0	0
St Louis	0	0	1
Nebraska			
Omaha	1	1	0
Maryland			
Baltimore	5	1	0
District of Columbia			
Washington	2	0	0
Virginia			
Norfolk	2	2	0
Roanoke	1	0	0
Alabama			
Birmingham	0	1	0
Mobile	1	0	0
Louisiana			
New Orleans	0	0	2
Shreveport	0	2	0
Texas			
Galveston	3	1	0
San Antonio	1	0	0
Colorado			
Colorado Springs	2	0	0
Oregon			
Portland	2	1	0
California			
Los Angeles	1	0	1
Sacramento	0	0	1
San Francisco	1	1	0

Epidemic encephalitis—Cases Trenton 2 Baltimore, 1 San Francisco 1
Pellagra—Cases Boston 1 Cincinnati, 1 Columbus, 1, Washington, 1, Atlanta, 3, Savannha, 1; Memphis, 2, New Orleans, 1 San Francisco, 2
Rabies in man—Bridgeport, Conn, 1 death
Typhus—Cases Norfolk, 1, Atlanta, 2, Montgomery, 4.

FOREIGN AND INSULAR

BRITISH INDIA

Vital statistics—1933—Comparative.—Following are vital statistics for British India for the years 1933 and 1932.

	1933	1932		1933	1932
Live births	9,678,876	9,054,506	Deaths from:		
Live births per 1,000 population	36	34	Cholera	68,318	67,219
Stillbirths	189,081		Diarrhea and dysentery	246,164	222,804
Number of deaths	6,096,787	5,805,666	Fevers	3,530,299	3,456,144
Deaths per 1,000 population	22 4	21 6	Plague	42,631	46,504
Deaths under 1 year of age	1,650,973		Respiratory diseases	443,305	405,924
Deaths under 1 year of age per 1,000 live births	171	169	Smallpox	103,641	44,925
			Other causes	1,662,429	1,562,146

CANADA

Provinces—Communicable diseases—2 weeks ended November 30, 1935.—During the 2 weeks ended November 30, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			1	1	2					4
Chicken pox	1	24	3	320	1,020	155	105	21	204	1,853
Diphtheria		5	10	60	21	14	3	2	2	117
Dysentery				2						2
Erysipelas				11	7	8	1		2	29
Influenza		7			32	5			8	52
Lethargic encephalitis					1					1
Measles	2	13	261	329	1,377	28	235	30	424	2,699
Mumps		47			942	230	1,299	17	193	2,728
Paratyphoid fever					3					3
Pneumonia		3			20		3		17	43
Poliomyelitis	1			1	1					3
Scarlet fever		23	12	320	626	75	39	40	75	1,210
Smallpox							1	1	1	3
Trachoma							1		9	10
Tuberculosis	3	54	26	95	65	19	2	4	41	309
Typhoid fever		1	3	56	11	4	2		3	80
Undulant fever				1	2					3
Whooping cough		41	5	118	412	25	70	24	15	710

GERMANY

Vital statistics—Second quarter 1935.—Following are vital statistics for Germany for the second quarter of 1935:

Number of marriages	192,095	Total deaths	201,190
Number of marriages per 1,000 inhabitants	11.5	Deaths per 1,000 inhabitants	12.0
Number of live births	329,791	Deaths under 1 year of age	22,736
Number of live births per 1,000 inhabitants	19.7	Deaths under 1 year of age per 100 live births	6.9
Number of stillbirths	8,257		

GREAT BRITAIN

England—Liverpool—Plague-infected rats.—Two plague-infected rats, 1 on December 4, and 1 on December 5, 1935, were reported in the docks zone in Liverpool, England, near ships loaded with grain from South America and the Orient.

England and Wales—Infectious diseases—13 weeks ended September 28, 1935.—During the 13 weeks ended September 28, 1935, cases of certain infectious diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	12,392	Puerperal pyrexia	1,453
Ophthalmia neonatorum	1,141	Scarlet fever	22,803
Pneumonia	5,510	Typhoid fever	780
Puerperal fever	501		

England and Wales—Vital statistics—Third quarter, ended September 30, 1935.—During the quarter ended September 30, 1935, 155,615 live births and 100,060 deaths were registered in England and Wales. The following statistics are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar General of England and Wales. The figures are provisional.

Birth and death rates in England and Wales, quarter ended September 30, 1935

Annual rates per 1,000 population:	
Live births	15.30
Stillbirths	.62
Deaths, all causes	9.80
Deaths under 1 year of age	[1] 44.00
Deaths from—	
Diarrhea and enteritis (under 2 years of age)	[1] 6.50
Annual rates per 1,000 population—Continued.	
Deaths from—Continued.	
Diphtheria	0.06
Influenza	.04
Measles	.02
Scarlet fever	.01
Violence	.52
Whooping cough	.03

[1] Per 1,000 live births.

JAMAICA

Communicable diseases—4 weeks ended November 30, 1935.—During the 4 weeks ended November 30, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	1	55	Leprosy		2
Dysentery	10	11	Tuberculosis	37	60
Erysipelas		1	Typhoid fever	27	107

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	July 28–Aug 31, 1935	Week ended— September 1935 7	14	21	28	October 1935 5	12	19	26	November 1935 2	9	16	23	30
China:																		
Amoy	C			1														
Canton	C	1																
Swatow	C	2																
India	C	19,176	24,379	25,494	57,713	14,187	13,950	12,611	10,959	9,501	8,050	6,467	5,864					
	D	10,447	13,840	13,286	29,945	6,802	6,388	6,093	5,020	4,594	4,150	3,281	3,014					
Assam	C	2,405	1,212	250	1,706	228	126	120	111		74	35	55	54	74	125	198	207
	D	1,465	666	146	871	116	66	62	42		37	16	26	29	30	62	123	112
Bassein	C	22	4															
	D	20	1															
Bombay Presidency	C	232	216	1,328	6,236	1,632	2,403	2,087	1,657	1,284	708	695	631	559	477			
	D	107	84	528	2,687	676	1,003	917	732	620	323	287	280	252	195			
Bombay	C			7	6			2	[1] 1							[1] 1		
Calcutta	C	825	704	522	216	30	36	36	17	13	30	28	19	22	19	40	33	30
Central Provinces and Berar	C	1,112	4,622	3,732	7,243	3,424	2,565	2,722	3,063	2,472	1,723	1,580		535	487	193	102	30
Chittagong	C	34	29	8	7										1			
Cochin	D				1		2	1	8	5	4							
Madras Presidency	C	1,468	2,583	2,972	7,487	1,806	2,199	2,350	1,830	1,556	1,261	800	1,031					
	D	782	1,162	1,264	3,249	775	912	1,037	758	689	581	376	468					
Madras	C		15	84	137	9	8	6	8	2	2	2	2			1	7	4
	D		5	23	57	5	2	6	2				1				1	3
Moulmein	C	1	18		1													
Northwest Frontier Province	C				80	173	113	52		10		2						
	D				36	87	48	39		7	2	2						
Punjab	C	5	142	252	516	176	73	33	20	17	25	63	49	23	1			
Rangoon	C	11	6	3										[1] 1				
Tuticorin	C	6																
Vizagapatam	C				1													
India (French):																		
Chandernagor	C	15	7	7	16	1												
Karikal	C									1			3	1				
Pondichery	C	31	6	2	39	27	28	6	22	16				1				
Indo-China (see also table below):																		
Pnom-Penh	C		1		1							1						
Varela	C		1															

Philippine Islands:																		
Occidental Negros Province	C				1													
	D				1													
Rizal Province	C		3		1													
	D		1															
Siam:																		
Ang Thoang Province	C									2	2	1	5	1			1	1
	D									2	2	1	4	1			1	1
Ayudhaya Province	C					3	17	9	17	7	2	8	13	5	8	8	4	
	D					2	13	5	11	6	1	7	11	4	7	4	1	
Bangkok	C				1	3	11	11	18	12	12	8	12	10	13	18	18	18
Bejrpuri Province	C				13	3	2	1	8	3	1		10				3	
Kanchanapuri Province [2]	C			6	9													
Nagara Pathom Province	C												11	6	12	3	4	
Nondpuri Province	C								2		2	6				6	6	7
Pradumdhani Province	C									1		4	1	1			1	
Rajpuri Province	C				72	7	6	74	20	15	2	1		6	8	2	11	9
Sarapuri Province	C										3	1	2	13	2	1	1	
Singhapuri Province	C										1	7	3	10	1	4		
Smudprakar Province	C					1	2		2		4	1		2		3		
Smudsagara Province	C				7	3	4	1	1	3	4	1	1	1	1	1		4
Smudsongram Province	C				51	5	18	6	27	5	2	12	4	2	11	11	7	3
Subarnpuri Province	C														12	1	3	2
On vessels:																		
S. S. *Bodnant* at Calcutta	C	1																
S. S. *Baron Napier* at Calcutta	C	2																
S. S. *Barjora* at Calcutta	C		1															
S. S. *Rajula* at Penang	C		[3] 1															
S. S. *Rajput* at Calcutta	C		1															
S. S. *Santhia* at Rangoon from Calcutta	C			1														
S. S. *Kuala* at Penang from Moulmein	C			1														
S. S. *Cape St. Francis* at Rangoon from Calcutta	C			1														
S. S. *Cape St. Andrew* at Calcutta	C			1														

Place		June 1935			July 1935			August 1935			September 1935			October 1935	
		1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20
Indo-China (French) (see also table above):															
Cambodia [4]	C	8	9	6											1
	D	3	6	1											1
Cochin-China [4]	C	7	5	11	2		2			3		1			1
	D	7	3	3	2		2			2		1			1

[1] Imported.
[2] During the period Apr. 20 to July 9, 1935, 98 cases of cholera with 95 deaths were reported in Kanchanapuri Province, Siam.
[3] Suspected.
[4] Reports incomplete.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	July 28–Aug. 31, 1935	Week ended— September 1935: 7	14	21	28	October 1935: 5	12	19	26	November 1935: 2	9	16	23	30
Algeria: Philippeville	C												3					
Argentina (see also table below):																		
Pampa Territory—																		
Leventue.[3]																		
Victorica	C	1																
	D	1																
San Luis.[3]																		
Azores. (See table below.)																		
Bechuanaland Protectorate	C	2																
Plague-infected rats		P																
Belgian Congo	C			3	2		2			1								
Plague-infected rats												3						
Bolivia. (See table below.)																		
Brazil.[4]																		
British East Africa:																		
Kenya	C	11	4	21	26	6	14	11	2	3	2	2	3	2	2			
Uganda	C	135	340	240	231	36	41	68	43	48	40	68	50	49	50	56		
	D	134	324	215	226	33	40	51	43	42	37	62	47	46	40	35		
Ceylon:																		
Balapitiya	C																1	
Colombo	C	4	3	5	4		6	3	2	5		1				2	1	
	D	4	3	5	4		4	2	2	5		1				1	1	
Plague-infected rats				3								3	11	6	17		2	
Ratnapura	C									1								
Tellijjawilla	C									1								
China (see also table below):																		
Amoy	C	[5] 1																
Fukiang Province—Chuanchow.[6]																		
Manchuria.[7]																		
Dutch East Indies: West Java	C	656	548	591	670													
	D	651	546	588	668													
Ecuador (see also table below):																		
Duran	C											1						
Guayaquil	C				3	4	1	1	2	6	14	6	9	7	9	5	17	10
	D					2			1	2	3	6	4	1	2	3	5	5
Plague-infected rats						2	1	2	2	4	1	1	2	1	2		4	5
Loja Province—Celica	C			1														
Nobol	C												1					

Egypt:																		
Alexandria	C	1																
Plague-infected rats		P	P	P	P		P	P	P		P		P		P			
Asyut	C	12	3	2	1											1		
Girgs	C	1	1															
Minya	C		3															
Qena	C		1								1							
Great Britain—England—Liverpool.[5]																		
Hawaii Territory: Plague-infected rats—																		
Hawaii Island—Hamakua district		1	1															
Hamakua Mill																		1
Kalopa				3	1													
Kukaiau [9]											1			2				
Paauhau							1					1	1					
Paauilo				1														
Maui Island—Makawao district—Kahului (9–10 miles from)					2		1											
India	C	2,570	261	176	947	312	330	291	500	454	828	754	599					
	D	2,037	183	111	483	110	133	124	266	210	373	329	316					
Bassein	C	4	4	4	1		1	2					1					
Plague-infected rats			1	3	1													1
Bombay Presidency	C	93	14	68	162	38	43	27	55	116	112	89	46	33	71			
	D	46	8	36	79	27	23	16	28	60	82	64	28	22	46			
Central Provinces and Berar	C	71		6	255	141	121	127	94	131	25	308		229	351	323	366	382
Madras Presidency	C	1	5	9	49	18	35	21	37	33	31	37	20					
	D		2	2	21	9	13	12	12	15	16	27	15					
Moulmein	C	1																
	D	1																
Punjab	C	548	40												11	9	12	
	D	327	31												5	3	3	
Rangoon	C	1	2	8	6				1				1					
Plague-infected rats		2		2	1				1				1					
Indo China (see also table below):																		
Longxuyen	C		1															
Pnom-Penh	C	1																
Saigon and Cholon	C	1	2		2													
Tayninh	C		1															

1 Including plague in the United States and its possessions.
2 A report dated Aug. 8, 1935, states that 4 cases of plague occurred at Leventue, Pampa Territory, Argentina, during 2 months.
3 A report dated Aug. 2, 1935, stated that plague-infected rats were present at San Luis, Argentina.
4 Reports of plague in Brazil have been received under the dates indicated, as follows: July 25, 1935, 4 cases at Vicosa, Alagoas State; July 2, about 16 deaths in Fiera Santanna, Bahia State since Jan. 1; Oct. 15, 7 cases near Bomfim, Bahia State, during September; during October 1935, 3 cases at Tanguinho, Santa Barbara, Bahia State; July 26, 10 cases in Ceara State since Jan. 1; Sept. 10, 204 cases with 72 deaths in Pernambuco State up to Aug. 24; Oct. 8, 4 cases and 1 death at Paulista, Piauhy State.
5 Imported.
6 A report dated July 4, 1935, states that 76 cases of plague with 58 deaths were reported at Chuanchow, Province of Fukiang, China.
7 A report dated Oct. 28, 1935, states that up to Oct. 23, 155 deaths from plague were reported in the provinces of Kirin, Lungkiang, Fengtien, and South Hsingan, Manchuria, China.
8 During the week ended Dec. 7, 1935, 2 plague-infected rats were reported at Liverpool, England, in the docks zone near cereal-laden ships from South America and the Orient.
9 During the week ended Dec. 7, 1935, 1 plague-infected rat was reported at Kukaiau, Hamakua District, Hawaii Island, Hawaii Territory.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE [1]—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	July 28–Aug. 31, 1935	Week ended— September 1935: 7	14	21	28	October 1935: 5	12	19	26	November 1935: 2	9	16	23	30
Iraq:																		
Baghdad	C	3	1	2	3		1									1		
Baghdad Province	C	1																
Libya: Province of Tripoli—Tagiura	C			1														
Madagascar. (See table below.)																		
Morocco:																		
Draa boundaries—Tighmert	C			7														
Mogador	C			9														
	D			3														
Saffi Region	C	1																
	D	1																
Peru. (See table below.)																		
Senegal. (See table below.)																		
South-West Africa. (See table below.)																		
Tunisia: Tunis	C		1	2	2	3	4	3		2							1	
	D		1	1		1	1										1	
Plague-infected rats		2	2		1												1	
Union of South Africa	C			7	4		[10] 2		[10] 6		[10] 4		[10] 14		[10] 2		[10] 5	
Cape Province	C	17																
Orange Free State	C	6																
Transvaal	C	1																
United States:																		
California—Plague-infected ground squirrels:																		
Lassen County			2	1														
Modoc County		26	65															
San Luis Obispo County		[11] 1																
Montana — Dillon — Plague-infected ground squirrels				1														
Oregon—Plague-infected ground squirrels:																		
Grant County				7														
Lake County		2	1															
Wallowa County				[12] 6														
On vessel: S. S. Ipanema at Marseille	C											[13] 2						

[10] For 2 weeks. [11] Plague-infected wood rat. [12] Includes 1 suspected plague-infected squirrel.
[13] One of these cases was a member of the crew and the other was a stevedore believed to have worked on the vessel. Several plague-infected rats were reported found on board the vessel.

Place		May 1935	June 1935	July 1935	August 1935	September 1935	October 1935
Argentina (see also table above):							
Jujuy Province	C			1			
Pampa Territory—Victorica	C		2				
Santiago de Estero Province—Frias	C		2				
Azores	C		1		3	4	
Bolivia	C				[14] 4		
China: Kwangchowan	C	7					
	D	9					
Ecuador: Loja Province	C	4					
Indo-China (see also table above):							
Cambodia	C					1	
Cochin-China	C	1	9		1		
Madagascar (central region)	C	128	95	112	138	232	
	D	124	92	102	133	227	

Place		May 1935	June 1935	July 1935	August 1935	September 1935	October 1935
Peru	C	10	4	4	10	3	1
Lambayeque Department	C	1					
Libertad Department	C	3		2		1	1
Lima Department	C	6	4	2	5	2	
Callao	C		1		3		
	D		1		2		
Plague-infected rats							
Lima	C	6	1	1	5		
	D	4	1		2		
Plague-infected rats							
Senegal:							
Baol [15]	C				16	8	
Dakar [15]	C	10	19	25	2		
	D	8	13	15	1		
Louga [15]	C	1					
Rufisque [15]	C	10	8	2	4		
Theis [15]	C	19	20	17	22		
Tivaouane [15]	C	30	48	42	46	11	1
South-West Africa: Ovamboland	C	[16] 34		[16] 24			

[14] Suspected.

[15] Incomplete reports.

[16] For 2 months.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	July 28–Aug 31, 1935	Week ended— September 1935: 7	14	21	28	October 1935: 5	12	19	26	November 1935: 2	9	16	23	30
Algeria:																		
Algiers Department	C		1	1			3	2										
Constantine Department	C	1	2															
Argentina [1]																		
Belgian Congo. (See table below.)																		
Bolivia. (See table below.)																		
Brazil:																		
Porto Alegre (alastrim)	C	18	46	29	6													
Rio de Janeiro	C		1															
Santos	C						1		1									
British East Africa:																		
Kenya	C	2	2	2	7													
Tanganyika	C	3	98	96	59	17	4	9	6		1	5		9				
Uganda	C	1																
British Guiana	C	P	40															
British Somaliland	C	47	25	16	3	20	5			1		1	2	1	1			
British South Africa:																		
Northern Rhodesia	C	4	2						1									
Southern Rhodesia	C											1						
Canada:																		
Alberta	C				[2]1													[2]1
British Columbia	C				[2]1	[2]3		[2]2		[2]1				[2]1				
Manitoba	C			[2]1														
Ontario	C		1	3														
Quebec	C			[2]2														
Saskatchewan	C		1							[2]3								
Canary Islands: Santa Cruz de Tenerife	C				1													
Ceylon: Colombo	C	2																
Chile: Chuquicamata	C			[2]1	1													
China:																		
Amoy	C		4	2	1													
Dairen	C	21	29	8	2													
Foochow	C	P	P	P	P	P		P		P		P		P				
Hangchow	C	1	3	1														
Hankow	C	11	3															

Hong Kong	C	10	1													1	1	
Macao	C	1																
Nanking	C	2	1	3														
Shanghai	C	12	12	2	5		1			1		1		1		1		
Swatow	C		3				1											
Tientsin	C	2	7		1													
Tsingtao	C	9	3		1													
Chosen. (See table below.)																		
Colombia	C	26	44		3			[2] 53	[illegible]						[4] 25			
Barranquilla	C	1																
Bogota	C	3			10										[4] 1			
Dahomey. (See table below.)																		
Ecuador. (See table below.)																		
Egypt:																		
Dakahliya	C	13	2															
Gharbiya	C		1															
Provinces	C	1	1															
Eritrea	C				5	6	6	2		5		2						
Asmara	C											1	3					
France. (See table below.)																		
Great Britain: England and Wales	C		1															
Greece: Salonika	C	14	64		8	2	2	2										
Guatemala. (See table below.)																		
Honduras: Tela	C		4	P							2							
India	C	37,507	30,153	13,440	10,576	1,824	1,340	1,060	1,306	1,170	1,076	998	903					
	D	8,423	7,225	3,320	2,735	432	322	258	244	251	209	195	210					
Assam	C	56	28	6	100	11	5	3			2	1	7	2		2	3	10
Bassein	C	[3] 1																
Bombay Presidency	C	7,958	5,046	2,273	1,678	251	186	169	142	148	80	155	104	117	178			
	D	1,430	957	471	363	49	28	28	28	23	10	19	13	9	18			
Bombay	C	284	239	102	54	10	6	3	5	4	3	1	3	2	6	2	5	6
	D	176	159	69	33	6	4	3	2	1	2	1		1	3	2	1	5
Calcutta	C	246	128	56	53	6	7	5	6	3	2	4	4	2	2	4	2	9
	D	188	109	40	27	5	5	2	3	2	1	1	1	2	2	2	1	5
Central Provinces and Berar	C	2,213	2,345	651	340	37	37	12	28	35	337	8		36	51	54	167	167
Cochin	C										1	3	1	1				
Karachi	C	23	26	7	7		1				1		1		1	1	1	
Madras Presidency	C	2,694	3,190	2,615	3,465	604	537	516	589	506	461	355	342					
	D	559	624	402	573	119	106	93	83	97	89	85	68					
Madras	C	22	24	10	10	1	5	2	2		1			3		1		3
Moulmein	C	1	5	6	18	4	1							1			1	
Negapatam	C	13	8	6	17	1			2			2						
Northwest Frontier Province	C			9	6	2										9		
Punjab	C	443	430	168	72	9	16	37	17	30	16	18	35	40	41	46	107	
Rangoon	C	59	25	16	8		1	1				1			[3] 1			
Tuticorin	C	5	11	19	25	6	4	1	1	2	4	1	4	3				
Vizagapatam	C	58	40	14	14	1	2	10	1	1	9	4	4	1		1	2	2

[1] A report dated Oct. 25, 1935, states that 19 cases of smallpox have been reported in Entre Rios Province, Argentina.
[2] For 2 weeks.
[3] Imported.
[4] For 6 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	July 28–Aug. 31, 1935	Week ended—September 1935 7	14	21	28	October 1935 5	12	19	26	November 1935 2	9	16	23	30
India (French):																		
Chandernagor	C	4	5	3	4	1	2	1	1			2	2					
Karikal	C	19	39	21	44	7	2	2	1	13	6	3	3					
Pondichery	C	59	61	50	51	13	6		3	2	6	3						
	D	51	48	41	39	14	7		3	2	3	3						
Indo-China (see also table below): Haiphong	C	7	3	2	1													
Iran	C	11	7		2			1	2	4	3	8	4		1			
Teheran	C	2	3	1		2				1		2						
	D	2	1					1				1						
Iraq	C	18	8		9					3	7		1					
Arbil	C	1			1													
Baghdad	C		1											1				
Basra	C									1						1		
Japan (see also table below)	C	23																
Kawasaki	C			1														
Kobe	C		1															
Mizuma Migifu Prefecture.[5]																		
Nagoya	C		5															
Osaka	C	1																
Lithuania	C			1														
Mexico (see also table below):																		
Chihuahua	C	[6] 2														[6] 1		
Guadalajara	D	1	5	2	1		2						1	1	3	2	2	1
Mazatlan	C																	1
Mexico, D. F.	C	108	135	32	51	8	9	2				2		2				
Monterey	C											1				1		
San Luis Potosi	D			2	2	2	1		1									
Torreon	C													1			3	1
Morocco. (See table below.)																		
Mozambique. (See table below.)																		
Nigeria	C	292	389	472	124	[3] 272	18				239		[3] 50					
Lagos	C		1															

Niger Territory (See table below.)																		
Nyasaland. (See table below.)																		
Palestine	C	3																
Peru. (See table below.)																		
Poland	C			1	1													
Portugal (see also table below):																		
Lisbon	C		1	1	2	1		1			1	1	1	1		2	2	
Oporto	C	1	1	2														
Portuguese East Africa	C	7																
Salvador. (See table below.)																		
Saudi Arabia	C	24	14	7	1									2				
Siam: Bangkok	C			6														
Sierra Leone	C	64	31	47	344		[2] 149		[2] 139		[2] 41		[2] 69					
Freetown	C			6	3		[2] 2				[2] 7							
Spain	C	38	45	38	13	2		5	5			5	2	2				
Straits Settlements: Singapore	C	6	7	16	12		1											
Sudan (Anglo-Egyptian)	C	6	2	2	7												2	
Syria: Tripoli	C										1							
Tunisia	C	1																
Turkey. (See table below.)																		
Union of Soviet Socialist Republics. (See table below.)																		

On vessels:

S. S. *Nagasaki Maru* at Nagasaki from Shanghai	1 case	May 10, 1935
S. S. *Karoa* at Singapore from Calcutta	1 case	May 29, 1935
S. S. *Anshun* at Singapore from Hong Kong	1 case	June 1, 1935
S. S. *Cremer* at Singapore from Amoy	1 case	June 4, 1935
S. S. *Van Heutsz* at Singpore from Amoy	1 case	June 18, 1935
S. S. *Chitose Maru* at Nagasaki from Dairen	2 cases	July 2, 1955
S. S. *Perala* at Aden from Massawa	1 case	July 13, 1933
S. S. *Englistan* at Rangoon from Gopalpore	1 case	July 30, 1935
S. S. *Hong Kheng* at Singapore from Amoy	2 cases	Aug. 1, 1935
S. S. *Barenfels* at Gibraltar	1 case	Aug. 23, 1935
S. S. *Talamba* at Rangoon from Madras	1 case	Sept. 9, 1935

[2] For 2 weeks.
[5] A report dated June 11, 1935, states that 10 deaths from smallpox had occurred at Mizuna Migifu Prefecture, Japan.
[6] For 3 weeks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		May 1935	June 1935	July 1935	August 1935	September 1935	October 1935
Belgian Congo	C	165	108	197	261	303	248
Bolivia	C	33	44	47	30	57	...
Chosen	C	157	102	47	32	16	...
Dahomey	C	...	...	7	2	3	...
Ecuador	C	20	14	...	...	...	...
Quito	C	3	8	...	...	...	...
Finland	C	...	1	...	...	...	...
France	C	15	57	60	1	6	...
Guatemala	C	...	...	...	...	4	...
Indo-China (see also table above)	C	303	210	203	138	103	98
	D	53	57	31	30	16	12
Japan (see also table above)	C	45	26	...	...	...	...
Mexico (see also table above):							
Aguascalientes State—							
Aguascalientes	C	...	3	3	...	...	...
Campeche State	C	...	2	1	...	...	...
Chihuahua State	C	...	4	...	...	...	...
Chihuahua	C	...	3	...	...	...	...
Guanajuato State	C	...	...	4	2	...	...
Leon	C	...	13	2	2	...	...
Hidalgo State	C	...	1	...	...	...	...
Jalisco State	C	...	10	10	1	...	...
Guadalajara	C	...	5	2	1	...	...
Lower California	C	...	...	3	...	...	...
Mexico (see also table above)—Con.							
Mexico State	C	...	1	1	...	...	...
Mexico, D. F.	C	...	140	54	35	...	...
Mexico City	C	...	118	41	31	...	...
Morelos State	C	...	1	...	...	...	...
Nuevo Leon State	C	...	7	...	...	...	...
Oaxaca State	C	...	2	...	23	...	...
Puebla State—							
Puebla	C	...	6	2	1	...	...
Queretaro State	C	...	5	...	...	...	...
San Luis Potosi State	C	...	...	5	5	...	...
San Luis Potosi	C	...	5	3	5	...	...
Vera Cruz State	C	...	...	...	3	...	...
Vera Cruz	C	...	...	...	1	...	...
Morocco	C	13	12	5	...	1	...
Mozambique	C	...	...	...	2	37	...
Niger Territory	C	797	...	174	209	111	...
Nyasaland	C	1	37	35	11	14	...
Peru	C	28	3	10	154	141	...
Portugal (see also table above)	C	41	76	38	...	...	...
	D	5	5	2	...	...	...
Salvador	C	...	...	35	2	...	...
Turkey	C	13	30	9	...	...	1
Union of Soviet Socialist Republics	C	255	135	...	...	...	...

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— Aug. 1935: 3	10	17	24	31	Sept. 1935: 7	14	21	28	Oct. 1935: 5	12	19	26	Nov. 1935: 2	9	16
Algeria:																				
Algiers Department	C	38	43	18				1					1			1			1	
Algiers	C	2	2																	
Constantine Department	C	23	97	36		1	1		1		1	2	1	1	3	1			1	
Bone	C										1	1								
Constantine	C	2										1			1					
Philippeville	C		5	2																
Oran Department	C	2	4	17																
Southern Territories	C	20																		
Australia: Queensland	C			2		1														
Basutoland	C			11																
Belgian Congo	C														1					
Bolivia. (See table below.)																				
Bulgaria	C												1							
Chile	C	414	363	282	67	99	82	71	78	55			[1] 230							
Conception	C	42	[2] 18	16		[3] 41	11			[1] 18			[1] 14							
Iquique.[4]																				
Santiago	C	215	[2] 82	111	45	44	82	28	46	31			[1] 141							
Valparaiso	C	5		1	2	2	1	3		2	7	2	13	3		10	13	25	2	17
China:																				
Canton	C	1																		
Hangchow	C		2																	
Hankow	C			2					1				1	1	1					
Harbin[5]	C	20	2																	
Hong Kong	C											1								
Nanking	C	2	1			1												1		
Shanghai	C	1	2	2			2	1												
South Manchuria Railway Zone	C									2										
Tientsin	C	5	5																	
Tsingtao	C		1	1	1	1			4	1		2	4							
Chosen. (See table below.)																				
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	20	12	4																
Aswan	C	41	2																	
Asyut	C			3	1		1	1	1								1			1
Beheira	C	161	59	19	3	3	1		2		1	1		7	2		1			5
Beni-Suef	C	2	2	1	1															
Cairo	C	5	1	1		1							1							

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 25, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935					September 1935				October 1935				November 1935		
					3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16
Egypt—Continued.																				
Dakahliya	C	4	2	2				1												
Damietta	C										1									
Faiyum	C		1																	1
Gharbiya	C	96	119	36	3	4	5	3	1		2									1
Girga	C							1												
Minufiya	C	44	27	20		1					1									
Minya	C	4	4	2		1		2												
Port Said	C	1		2				1	1	1										
Qena	C	3	1																	1
Sharkiya	C	6	9	4					1											
Provinces	C	502	255	98	8	11	8	8	6	8	4	4	2	7	3	1	3	1	1	10
France. (See table below.)																				
Greece. (See table below.)																				
Guatemala. (See table below.)																				
Hawaii Territory—Honolulu	C			1				1							2		4			
Hungary	C	17	5																	
Iran	C	88	98	29	4	3	6	7	9	9	6	3	3		2	2	1		2	
Teheran	C	15	22	14					1	1	1	1				2				
Iraq:																				
Baghdad	C								1											
Basra liwa	C											1								
Sulaimani liwa	C	14	9																	
Irish Free State:																				
Cork County—Castletown	C	1																		
Waterford County [6]—Lismore	C		1																	
Japan: Tokyo	C		13	1																
Latvia. (See table below.)																				
Lithuania	C	37	21	12	3			3			1	2								
Mexico (see also table below):																				
Guadalajara	D		1	1																
Mexico, D. F.	C			94		30	36	33	43	36	42	26	30		30	20		23		
Torreon	D										1		1							
Morocco	C	77	86	62	10	5	1	2	1		1		2			1		7		
Palestine:																				
Haifa	C	3	3	3			2	1	[7] 4		6	3	[8] 2	1	3	1	3	4	4	1
Jaffa	C	5																		
Panama Canal Zone. (See table below.)																				
Paraguay: Asuncion	D			1																

Peru. (See table below.)																			
Poland	C	597	445	175	33	30	22	24	21	14	19	9	14	29	30	28	22	23	23
	D	42	21	10	2	4	1	2	1	1	1			2		1	1	2	
Portugal. (See table below.)																			
Rumania. (See table below.)																			
Saudi Arabia	C	3																	
Straits Settlements: Singapore	C	2			1				1			1			1				
Trans-Jordan	C	11	13						1	2				1	1				
Tunisia:																			
Tunis	C	9	3	1	1					3		1		1			1	1	
Provinces	C	158	115	88	17	15	15	9		12	4	2		1		1	11	2	1	1
Turkey. (See table below.)																			
Union of South Africa. (See table below.)																			
Union of Soviet Socialist Republics. (See table below.)																			
Yugoslavia. (See table below.)																			
On vessel: S. S. *Agamemnon* at London	C											1							

Place		May 1935	June 1935	July 1935	August 1935	September 1935	October 1935
Bolivia	C	127	111	114	150	140	
China: Manchuria—Harbin	C	45	25				
Chosen	C	254	135	40	31	17	
Czechoslovakia	C	8	11	33	3	1	
France	C				1		
Greece	C	2		5	1	4	
Guatemala	C	7	6	22	24	43	18
Latvia	C	4		1			
Mexico (see also table above):							
Aguascalientes State:							
Aguascalientes	C		1				
Coahuila State	C				1		
Durango State	C			1			
Guanajuato State	C		3	9	7		
Leon	C		1	5	6		
Hidalgo State	C			6			
Jalisco State	C				8		
Guadalajara	C		3	1	1		
Mexico State	C			2	15		
Mexico, D. F.	C		95	178	159		
Mexico City	C		91	170	155		
Michoacan State	D		1				
Nayarit State	D				6		
Mexico—Continued							
Oaxaca State	C		1	5	6		
Puebla State	C			7			
Puebla	C		4	5	9		
Queretaro State	C		1		5		
San Luis Potosi State	D			11			
San Luis Potosi	C		5	1	1		
Sonora State	C				4		
Vera Cruz State	C		1		7		
Vera Cruz	C				2		
Panama Canal Zone	C	2	1	1			
Peru	C	96	19	16	3	41	
Portugal	C	2	3	4			
Rumania	C	574	300	59	36	26	
Turkey	C	69	54	42	34	10	13
Union of South Africa:							
Cape Province	C	128	172	79	97	55	
Natal	C	5	2	2	4		
Orange Free State	C	44	123	37	37	10	
Transvaal	C	12	25	3	6	2	
Union of Soviet Socialist Republics	C	7,196	4,643				
Yugoslavia	C	64	131	49	31	11	6

[1] For 3 weeks.
[2] For 2 weeks.
[3] For 4 weeks.
[4] For the week ended Mar. 9, 1935, 11 cases of typhus fever were reported at San Jose nitrate camp about 42 miles from Iquique, Chile.
[5] A report dated June 25, 1935, states that about 400 cases of typhus fever occurred at Harbin, Manchuria, China.
[6] During the week ended Nov. 23, 1935, 1 case of typhus fever was reported at Youghal District No. 2, Waterford County, Irish Free State.
[7] Includes 3 imported cases.
[8] Imported.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Apr. 28–May 15, 1935	May 26–June 29, 1935	June 30–July 27, 1935	Week ended— August 1935 3	Aug. 10	Aug. 17	Aug. 24	Aug. 31	September 1935 7	Sept. 14	Sept. 21	Sept. 28	October 1935 5	Oct. 12	Oct. 19	Oct. 26	November 1935 2	Nov. 9
Bolivia: Santa Cruz Department—Chuchio:[1]																			
Brazil:																			
Goyaz State	C		6																
	D	6																	
Maranhao State	C		1																
Mato Grosso State	C		2	9															
Minas Geraes State	C		14	6		1			8										
	D	9	8																
Para State	C		1												1				
Sao Paulo State	C		1					1											
Colombia:																			
Intendencia of Meta	C								1										
Acacias	C				1														2
Restrepo	C	1		1															2
Dahomey:																			
Parakou	C		[2] 1																
Porto Novo	C			1															
Gold Coast:																			
Bawku	C														3				
Cape Coast	C					1													
Tamale	C											1							
Ivory Coast: Abidjan.[3]																			
Sudan (French): Koutiala	C																1		
Togo:																			
Agoueve	C	1																	
Kouma	C	1																	
Sekode	C	1																	

[1] During the month of June 1935, 1 case of yellow fever was reported at Chuchio, Santa Cruz Department, Bolivia.
[2] Suspected.
[3] During the week ended Nov. 23, 1935, 1 case of yellow fever was reported at Abidjan, Ivory Coast.

X